



THE
EIGHTEENTH
LACUS
FORUM
1991



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LACUS FORUM

1991

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THE EIGHTEENTH LACUS FORUM 1991

edited by
Ruth M. Brend



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Preface

As has been the case in the past, the 18th annual LACUS Forum held on the campus of the University of Michigan was a happy occasion of the sharing of linguistic studies by scholars of a variety of divergent areas and interests. Discussion was often animated, but never bitter. There was a collegial sense of inquiry and a seeking of knowledge, which was a benefit to many. The contents of this volume are testimony to the widely-different topics presented. We heard about Dante and about onomatopoeic words in cartoons, about U.S. college slang and the naming practices in China, as well as about the more customary areas of synchronic and diachronic linguistics.

One unusual feature of the 18th Forum was the inclusion of a number of papers on the many contributions of a former president of LACUS — Kenneth L. Pike — who will be 80 years of age in June, 1992. As an early celebration of that event, nine people presented papers focussing on Pike's publications and insights. We were fortunate in keeping this aspect of the Forum a secret from him until it's actual occurrence — and his delight pleased us all.

Cynthia Ford Meyer won the Presidents' Post-Doctoral Prize for the best paper presented by a non-tenured faculty member. Nancy Pine won the Presidents' Pre-Doctoral Prize for a presentation by a graduate student. Diane Ringer Uber won the Presidents' Post-Doctoral Commendation. Their papers are herein included.

One of the lighter moments occurred when, just prior to her Presidential talk, Velma Pickett announced that she was about to become the "Adelaide Hahn of LACUS" and donned a hitherto-hidden beflowered hat which, indeed, was reminiscent of those worn by Dr. Hahn for many years at the LSA meetings. We wonder if this tradition will continue?

Many people helped make this conference such a pleasant and profitable one. Valerie Makkai continued her untiring efforts on the part of the Association. Without her heroic and largely unacknowledged labor, the conference could not have been held. The standing ovation given to her at the banquet is but small acknowledgment of that fact. To Thomas Toon and the Linguistics Program at the University of Michigan is due warm thanks for the funding of much of the conference expense, and for the overseeing of the conference handbook. Facilities were more than could have been desired, and the University's contributions are very much appreciated.

Finally, we were all saddened to have lost two past Presidents of LACUS in the previous year — Dwight Bolinger and Bob DiPietro. We are thankful for their memory and for the many contributions they gave to us personally and professionally, and we will miss them dearly.

It is hoped that this volume will provide at least some of the excitement and appreciation experienced by those who attended the Forum.

March 1992

Ruth M. Brend

In Memoriam

Dwight L. Bolinger

President, 1975-1976

Robert J. DiPietro

President, 1989-1990

I

SPECIAL LECTURES

1991 PRESIDENTIAL ADDRESS

GROWING AND BENDING--A LINGUISTIC AUTOBIOGRAPHY

From structuralism to theory clash
to universal dreams of communicability

Velma B. Pickett

Summer Institute of Linguistics

In what sense are we as linguists a product of our linguistic and other educational environments? How do our training, our contact with individual linguists, our field work, and our particular professional role influence our linguistic direction?

As it has often been pointed out, we all stand on someone else's shoulders. Isaac Newton has been quoted as saying "If I have seen farther than other men, it is by standing on the shoulders of giants." None of us can claim complete independence in our linguistic accomplishments.

Interdependence is sometimes easily recognized, but not always. The purpose of this presentation is to trace some of my own personal experiences and those of a few colleagues as examples of this interdependence.

But first, a few questions in a realm in which I cannot claim personal experience or evidence: (1) How much was Charles Fillmore's early case grammar approach (Fillmore 1968) affected by having studied tagmemics under Kenneth Pike at the University of Michigan? (2) How much was the whole transformational grammar movement affected by Noam Chomsky's training under Zellig Harris and the latter's specific interest in the difference between active and passive sentences in English? And what led Chomsky to go in a somewhat different direction from his mentor, with emphasis on sentences as the basic unit of syntax, rather than the whole discourse? Or with special interest in ambiguities? Did the interesting ambiguities in English lead him to limit his study to sentences? Or did an independent decision to limit study to sentences result in the attention given to ambiguities? And how much of these interests were results of home background? I once heard a rumor that Chomsky at about age 14 proofread a book of his rabbi father's on logic. Logic works with individual sentences or syllogisms--not with texts. Could it be that this logic-and-math start determined his interest in individual sentences rather than in full discourses or sociolinguistics?

Kenneth Pike, on the other hand, delayed giving attention to sentence ambiguities because his interest from the beginning was in expanded constructions and whole discourses. (In context, most of these ambiguities disappear.) This specific interest on the part

of Pike and his tagmemics protégés is, I think, a result of field work in preliterate communities, where the context of the whole social situation and the felt need of working with extended texts have their effect. Based on his experience in a Mixtec community which was almost completely monolingual Pike stated "*I could not start with extended argument with speakers about individual sentences; I could not talk with them in their own language, nor in Spanish, about chunks of speech. So I had to begin in a social context--monolingual work demands it*" (personal communication).

Much of what follows comes from my own experience, combined with my observations of the history of linguistics during the past fifty years. It is my hope that these experiences will help us all to recognize and acknowledge how others have contributed to our development.

My first training in linguistics and much of my teaching experience has been through the Summer Institute of Linguistics. In the beginning days a fairly unified approach was used in instruction and field work. But as SIL members went on for graduate studies in universities where various theoretical approaches were taught and as my own contacts broadened to teaching in various universities in Central and South America, unity became diversity, from which I had to come back to my own particular "unity."

But to go back to the "beginning of time," my very first linguistic training was the three-way approach of the beginning SIL course: phonetics, phonemics and morphology, as given at the University of Oklahoma in 1942.

Phonetics is a speciality of SIL, perhaps the best training one can get in preparation for work in an unwritten language and, of course, helpful in learning to pronounce well the sounds of any new language. I have never taught phonetics, so much of what I know about it I learned that first summer. I especially recall learning how to pronounce glottalized consonants, and enjoying the other students' attempts to pronounce my last name with only glottalized consonants (p'k't'). And then how disappointed I was not to find any glottalized consonants in Isthmus Zapotec, the language I was assigned to learn and analyze! The Zapotec language did, however, have some very interesting phonetic features, such as those that mark the opposition between fortis and lenis consonants. Zapotec fortis consonants are always voiceless and characterized by strong articulation, sometimes aspirated or lengthened. Lenis consonants are weaker in articulation and may vary from voiced to voiceless. Isthmus Zapotec fortis consonants are represented as p, t, k, s, š, č; lenis consonants as b, d, g, z, ž, j.

There is also a complex relationship among stress, vowel length and consonant length. Stressed vowels are phonetically

lengthened in word-final position and when preceding lenis consonants, as in:

['bi:] 'wind'

[ri'bi:] 'sits down'

['ni:za] 'corn'

compared with a short vowel preceding a fortis consonant, which itself is lengthened.

['nis:a] 'water'

When I first faced these features, however, I analyzed them in reverse. I treated vowel length as phonemic, with stress phonetically accompanying long vowels. But in the stressed syllables followed by a fortis consonant, the phonemic vowel length was manifested phonetically by lengthening of the consonant. (See ['nisa] above.) At this stage I gave my first and last paper at a Linguistic Society of America meeting. One of the most noted LSA members criticized the manifestation of vowel length in a consonant, and although later phonological theories would have no problem with such an analysis, I suppose it was criticism from such a scholar that scared me out. In any event, I did not continue interest and research in phonetics.

Pike was our chief instructor in phonetics and phonemics in 1942, and one sheet of paper constituted the textbook. On one side was a basic format for a phonetic chart and on the other a very small print description of how to find a phoneme. A phoneme was what you had when you had applied all the procedures therein outlined. Again, I have not gone on extensively in this field, but in spite of many new phonological theories which have developed through the years, I am still a bit prejudiced in favor of "finding a phoneme via procedures" as a good way to begin analyzing the sound system of a language.

Eugene A. Nida headed up the third subject in that introductory course, which was named Morphology. (It is labeled "Grammar" now, but at that time there was very little worked out for analyzing the syntax of unwritten languages.)

As our textbook, Nida assigned portions of Bloomfield's *Language*. I should have gotten more out of it than I did, I suspect, since most linguists at that time considered the book the most basic linguistic document. But most of us were not ready for such complexities, expressed so very concisely. Morphology was made much easier with the appearance of Nida's first pedagogical, procedural book (*Morphology* 1946).

After completing my second semester of SIL courses, Nida invited me to teach with him in the morphology course. As a result, my main interest in both pedagogy and research during the following years has been primarily in the area of grammar.

In the morphology course, as in phonemics, we were preparing students for work in unwritten languages. We taught them how to identify morphemes and their variant forms. Morphemes were minimum *formal* units of *meaning*, but this meaning might be expressed by means of variant forms, determined by their distribution. We wrote process kinds of rules, such as *n* becomes *m* before *b* and *ŋ* before *g*.

Late in the forties, however, and through the fifties, a new wind was blowing. It became popular to try to work in both phonemics and grammar without the use of meaning. And alternations in forms were to be expressed without the use of rules, but only by means of distributional statements. As a result Nida began to change his approach to follow these distributional trends. He gave a paper at the 1948 LSA summer meeting to test his proposal, received affirmation there, and completed the revision of the book (1949). Now *n* no longer became *m* etc. but, for example, the prefix *in-* alternated with *im-* and *iq-* in specified distributions. According to my next mentor in morphology, Charles F. Hockett (chairman of my Master's committee at Cornell University), Nida did not quite succeed in eliminating process, because he kept two types of process morphemes: replacives and subtractives. In the field in general, process terminology was taboo. However, in the preparation of my MA thesis, the description of certain Isthmus Zapotec verb forms seemed extremely awkward when stated in purely distributional terms, and Hockett allowed me to use process terminology in that case. And it was about that time that he wrote his famous article regarding item-and-arrangement and item-and-process models (1954), in which he suggested that the usefulness of the IP description should not be lost sight of in the current enthusiasm for the IA. The benefit of this experience was the assurance that the laws of the linguistic Medes and Persians were not necessarily inviolable. Parenthetically, one of the features of the so-called revolution of the sixties which I welcomed heartily was the use of "rules," which seem to me to be closer to our earlier "process statements." In keeping with Pike's "wave" view (combined with complementary "particle" and "field"), process must continue to be a part of linguistic description.

But to go back to the forties and fifties, this was the period of great polemics over just how morphemes and their alternating forms were to be identified. Discussion went on via articles in *IJAL*, *Language*, etc (as well as via personal correspondence) by such scholars as Bernard Bloch, H. A. Gleason, Zellig Harris, Archibald Hill, Charles Hockett, Martin Joos, Floyd Lounsbury, Eugene Nida, Kenneth Pike, George Trager and Carl Voegelin. One

of the concepts considered unacceptable at that time (but which came back in the sixties, to my delight) was that of zero, either morphemes or allomorphs. This was an important feature in Isthmus Zapotec, as I argued in an article published in IJAL in 1953.

And so it was that my principal interest in the forties and early fifties was centered in the problems involved in morphology--what was acceptable and not acceptable in identifying morphemes and their variants.

Meanwhile, what about syntax? As mentioned above, one of the generally accepted postulates of the forties was that analysis at all "levels"--phonology, morphology and syntax--was to be done without depending on meaning. Actually I discovered in talking with various members of the LSA that almost everyone kept meaning under the table to be pulled out secretly whenever needed. (They considered it a useful shortcut but not really a proper tool.) The SIL courses were more open about its use, but when Nida began to work syntax into a pedagogical approach applicable to the beginning linguistics course, he did make an effort to emphasize formal criteria in deciding on the immediate constituent structure of sentences. The students were given exercises using squares and circles and do-re-mi's in preference to actual (or hypothetical) language forms with meanings identified. They were to determine the constituent structure in terms of expansions and frequency of combinations, or some such procedure.

Personally I had a great deal of trouble with the exclusion of meaning from linguistic analysis. I found it impossible to work with distributional features without also being aware of meaning. However, one result of the de-emphasis of meaning in my formative years is that now I do not find it easy to tune in to the present dialogues about semantics!

A second "requirement" for syntactic analysis at that time was that of *binary* immediate constituents. Here too, I had a great deal of trouble. I had started work in Isthmus Zapotec, and the unmarked order of clause constituents in all the Zapotec languages is verb-initial, in most cases followed by subject and object. And since we were working only with surface structure, i.e. what is *there*, not what might have been there at some point and got changed in its order by some handy rule, I had trouble fitting a VSO language into a binary Subject-Predicate (or NP-VP) mold. It wasn't until the tagmemics of Pike and Longacre recognized structure in potential "strings" of constituents, further divisible into immediate constituent groupings according to the needs of the specific language, that I was able to actually attack syntax with any confidence. Robert Longacre's contribution of a labeled hierarchy of constructions from the unit morpheme up to clause and sentence was followed by further refinement by both

Longacre and Pike to include levels of structure beyond the sentence. It was these breakthroughs which made it possible for me to finally complete an analysis of Isthmus Zapotec syntax and to begin writing my own introductory grammar textbook (later editions co-authored with Benjamin Elson) to provide more help for beginning students in analyzing both morphology and syntax of unwritten languages.

Another sample of the influence of a particular language is my special interest in clitics. The Zapotec language family may be characterized as employing a wide variety of clitics, at all levels of structure--phrase, clause and sentence. Independent words in Zapotec tend to be short, including very few affixes. Instead, there is an abundance of morphemes which are not clearly independent words but also not clearly affixes. They are bound phonologically but with a certain freedom in the syntax, analogous to independent words. These little rascals have become one of my major theoretical interests, as revealed in a paper presented for the Thirteenth LACUS Forum.

The problem in Isthmus Zapotec may be illustrated by the person markers and deictics. Note the following constructions:

biku wi'ni 'dog little' biku wi'ni-ke 'dog little-that'

š-piku wi'ni-be 'Pos-dog little-3s

š-piku wi'ni-be-ke 'Pos-dog little-3s-that'

Both the person marker *be* and the deictic *ke* are bound phonologically to the adjective *wi'ni* but are grammatically related to the noun. The person markers also function as clause subjects, replacing noun phrases.

Perhaps I should also mention a couple of negative results of working in Zapotec. I confess to a regrettable lack of interest in case and agreement, since these features do not occur in Isthmus Zapotec. In addition, I have a lack of concern over complex word structures, with potential immediate constituent groupings of affixes. I recall a visit one summer from a colleague working in a highly synthetic language in Peru, who insisted: "I trust you are giving plenty of time in the course for complex word structure." I remember responding weakly that we can't get a strong emphasis on *everything* into one summer course. On the other hand, I always manage to find time to drill students in recognizing clitics!

Thus far, then, my approach to linguistic theory and practice had been influenced to a great extent by the structure of the particular language I had been analyzing and by my first teachers. Interestingly enough, I was also influenced by contributions of one of my own students. Robert Longacre, whose

labeled grammatical levels were such a help to me, had first been a student in one of my classes at the University of Oklahoma.

In the midst of my doctoral studies at the University of Michigan, a new book came to our attention. It was entitled *Syntactic Structures*, and it was written by a recent graduate of the University of Pennsylvania who had begun teaching at the Massachusetts Institute of Technology. I tried reading it and comparing it with the tagmemics I was working with, but frankly my mind just couldn't make the adjustment. Here I think is an example of how one's experience, even prior to beginning work in languages, can have a tremendous effect. The only courses I had had in mathematics were beginning algebra and geometry in high school, and in the university I had one introductory course in psychology (and it was behavioristic!) but not a single course in logic. So I was not prepared to absorb a new theory of linguistics which seemed to depend on experience, or at least interest, in these areas of study. Contrast my experience with that of students beginning work in undergraduate linguistics in the sixties, in universities with only one linguistic model available and with courses in math and logic included. I recall talking with some of them at LSA meetings. They were perfectly at home with transformational thought, and in fact many of them were unaware that anything else existed.

After completing graduate studies at the University of Michigan, I went back to work in Mexico with concentration on translation work and not much time to keep up with linguistic literature. Linguistic theory seemed to be moving on without me! I felt quite left out as both transformational grammar and tagmemics developed in various ways. Also both M. A. K. Halliday and Sydney Lamb were developing their theories. In 1969 I heard rumors that Halliday and Lamb were both going to give courses at the LSA Linguistic Institute, and of course there would be lots of courses in transformational grammar. I decided to go to "catch up." I thought I would audit courses in all three models (an ambitious goal indeed). It turned out that neither Halliday nor Lamb was there, so I audited various TG courses. I learned about the structure of English and about syntactic analysis, supposedly in general but actually English only, from two young scholars named Bruce Fraser and Ronald Langacker. And Robert Lees endeavored to impress upon me the "uselessness" of our SIL procedural type textbooks. He informed me that there is only one set of "procedures" for doing linguistic analysis: (1) use a pencil for recording data, rather than a pen (the ink would run if it got rained on) and (2) *Be smart*.

In the syntax classes, I began to feel that the basis on which English sentences were starred or unstarred came from the idiolect of the analyst as a native speaker, a source which is unavailable directly to analysts of languages in preliterate cultures. We were accustomed to working with a "corpus" of

native-speaker text material obtained mostly by observation: (1) by pointing to items for identification, or (2) performing various antics to get verb forms, or (3) by asking "How do you say X in your language?" plus stories and descriptions taken down by dictation or (later) recorded on tape. We were not in the habit of saying "Can you say X?" In fact, I recall Nida's warning against such a question, because the speaker might say yes but in his mind be thinking, "Of course we never do!"

I also learned a great deal about how different people pronounce English and form English sentences and it seemed to me that many of the "I-can't-say-that" comments were based on isolated sentences, completely out of any natural context.

Another emphasis which was new to me was that of universal rules. I reacted against rules which seemed to be postulated mostly on the structure of one language. But the very concept of universal structures was hard to take in. My early training had emphasized how languages are different more than how they are alike. Note the following quote from Bloomfield (1933:20): "The only useful generalizations about language are inductive generalizations. Features which we think ought to be universal may be absent from the very next language that becomes accessible."

It was in this kind of approach to language that I was trained. This was, however, a result of a reaction against some early grammars of American Indian languages which poured their structure into a Latin-grammar mold. Linguistic theories are frequently pendular swings in reaction to earlier unsatisfactory theories or practices.

The term "universals" is, of course, not out of bounds in tagmemic theory. On the contrary, there is great emphasis on "general human behavioral universals underlying and relevant to linguistic ones" (Pike 1980:10). All languages, from Pike's point of view, include three hierarchies: phonological, grammatical and referential, and these are ordered from smallest structures to largest (i.e. least inclusive to most inclusive.) In addition, Pike's early phonetic materials were intended to show how all languages fit into a broad system of sounds, including some universals, such as the presence of consonants and vowels and a range of possibilities. Pike's phonetic chart was, like the *distinctive features* of Ramon Jakobson and phonologists who followed him, intended to encompass all the sounds thus far discovered in languages.

In addition, that summer of 1969 at the LSA Institute I heard heated arguments, which I did not fully understand, between one George Lakoff and one Ray Jackendoff. Evidently the present linguistic world was beginning to split apart, just as I was barely beginning to discover what that world was.

In the light of all this, I decided to stop trying for membership in the let's-get-into-the-mainstream club. It seemed best to just stick happily with my already-proven-useful tagmemics.

The next experience which had a big impact on my view of writing grammars came when I was a visiting scholar at UCLA in 1975 and 76. I had not previously met Sandra Thompson, but during that year she became one of my most admired scholars. One day she asked me when I was going to write a reference grammar of Zapotec. Well now, I had never thought of doing such a thing; in fact I wasn't quite sure what she meant, so I asked, "What is a reference grammar?" Her answer, in brief, was: a grammar which all linguists can understand. She said she had problems getting usable data from the formulas of tagmemic grammars. (How well I knew how hard it was for me to follow transformational grammar formulas.) This one conversation, plus Thompson's further explanations of what she had in mind, probably affected my linguistic teaching and writing, though not specifically my theoretical views, as much as any other single influence.

About this time, Benjamin Elson managed to pry himself free from administrative duties and get back into linguistics, and he was ready to revise our co-authored introductory grammar textbook, which had not been changed since 1962. We were both feeling the need of a textbook to train students to write grammars which readers of various linguistic persuasions could follow, and from which linguists could more easily obtain data for comparison with other languages in establishing universals based more on data than on ivory tower theories.

Before we began writing, I presented a paper for the Seventh LACUS Forum, entitled "Can there be a model-neutral textbook?" The responses of the LACUS members at that Forum were indecisive. And our experience has shown us that the model with which a writer is most familiar is bound to influence the outline of such a textbook or the description of the grammar of a given language. Our tagmemic background inevitably shows up in our textbook, just as Sandra Thompson's TG background showed up in certain areas of a suggested reference grammar outline which she presented to us.

For example, consider the use of the terms "clause" and "sentence." In tagmemics, these are distinct, explicitly-defined construction units, and in the early editions of our textbook we explained the difference at some length. The explanation was not at all clear to Sandra Thompson, who was accustomed to using the term clause only in such contexts as "dependent...", "relative..." or "subordinate...". This general custom was one of the factors in my pushing to eliminate the overt difference between clause and simple sentence. Another influence was my teaching linguistics in Spanish. I discovered that the term "cláusula" in Spanish did not

mean at all what "clause" means in English. In teaching the tagmemic hierarchy I had to continually remind the students that "cláusula" in these contexts was very different from their general understanding of the term. In later editions of the textbook, we more or less eliminated the term clause, except in the contexts in which it was popularly used. Strangely, since that time the general linguistic climate seems to have found more room for the term, though not with the explicit definition given in tagmemics.

So it is not without problems that one attempts to write a model-neutral textbook or grammatical description. However, I feel sure that the attempt is worthwhile and that grammatical descriptions written in a more general, less technical form will make them more accessible to the linguistic world as a whole.

I do not intend to imply, however, that there is no place for specific theories or the use of formulas and theoretically-oriented terminology. The theory, the formulas and the terminology related to them, are no doubt vital to the process of analysis, and linguists within a given theory can only react to new insights, (with resulting improvements in the theory) by operating within the same system of terminology. This we have seen clearly over the years of argumentation in the various stages of generative grammar. And of course it is theory which provides insights. As Pike puts it: "A theory is like a window...(which is) directional. By looking out of a south window we get one view, but out of a north window a different view. Both lead to partial insights into one's surroundings, but in different directions. Sometimes, however, the same view may be seen through two different windows.... If we look at the same data through different theories, we may see different aspects of a pattern" (1982:5).

In my conversations with Sandra Thompson, she expressed a similar view: that we need various theories because one gives insight for some data, others for other data. We must be prepared to get insights from each other. The problem here is: how does one individual linguist, with limited preparation and research time, manage to control various theories sufficiently well stto apply the one most suitable in a given situation?

In any event, I think we must *also* be ready to publish language descriptions which can be accessible to linguists of various models, to provide the data needed for study of typologies and universals.

I mentioned earlier the influence exerted by the kind of linguistic work one does: the fact that work in an unwritten language results in quite different procedures from, say, analysis and reanalysis of Indo-European languages. Also related to this are certain sociolinguistic factors. If our linguistic work is being done as a service to a community, rather than out of an interest in testing and improving linguistic theories, we face various

alternatives. For example, in preparing bilingual dictionaries, how should one represent words which require the inclusion of affixes for such categories as person and/or tense? To present the forms by only the stems would be unintelligible to the native-speaker readers. Word categorization might also be different from our usual linguistic approach. Frequently it is necessary to relate to the system of word classes used in the official language of the schools. Both of these situations apply to Isthmus Zapotec.

I'm thinking also of another personal experience regarding service to native-speaker readers. It relates to orthographic representation of phonemic tone. Isthmus Zapotec, like many other languages in Mexico, is a tonal language. There are, however, only a few minimal pairs based only on tone, and they do not carry a heavy functional load. Unlike such languages as Mazatec, Mixtec, Chinantec and Trique, these tone contrasts in Zapotec are almost always disambiguated by the context.

In addition to the minimal functional load of tone, three sociolinguistic factors entered into our decision regarding writing it in Zapotec: (1) Zapotec readers objected highly to our adding extra marks on the written words, marks which they failed to understand and for which they had no felt need, (2) the best writer of the language has never learned to read or write the tone symbols, although she is keenly aware of our tonal errors in speaking, (3) the tones differ from one town to another, so that to write the correct tones for our town of Juchitán would not have served for the other towns within the same language area.

Because of these linguistic and sociolinguistic features, we have not written tone in literature prepared for native speakers. In the other languages mentioned above, however, such an omission would be disastrous. This is just another example of how linguistic practices are affected by the particular language studied. My theoretical approach to tonal languages remains the same: tone must be investigated for potential phonemic contrast. But as a result of working in Zapotec, I tend to be much more lenient as to the need of writing it in literature for native speakers. In contrast, those who have worked in languages in which tone carries a much heavier functional load tend to assume that it must always be written.

Now let me give an illustration of how a particular language can affect one's *theoretical* viewpoint. In the sixties most of the theoretical "rules," "constraints," etc. were based on the structure of English. Pike and other tagmemists were criticized for not being in the mainstream because the tagmemic model had not been applied to English. And so attention was turned to problems of English data. This might be viewed as an indirect influence of Chomsky on Pike.

When Kenneth and Evelyn Pike did begin to analyze English, they carried further a claim Pike had made to Elson and me from the first time we began preparing tagmemic textbooks, namely that **Subject as Actor** and **Subject as Goal** (later **Undergoer**) were different tagmemes. This fact is certainly true for English because of the contrast of active and passive constructions. The revision of the tagmemic model in the book *Grammatical Analysis* (Pike and Pike 1982) expanded the original slot-class model to a four-cell tagmeme including role and cohesion. So we have the arguments of the English active clause (root) (e.g. Joan heated the food) represented as:

Subject as Actor plus Adjunct as Undergoer (direct object), with both manifested by NP, etc., and both with certain features of cohesion marked in the fourth cell.

In contrast, the passive clause (root) structure (e.g. The food was heated by Joan) has:

Subject as Undergoer (manifested by NP etc.) plus Adjunct as Actor (manifested by an agent phrase).

This is fine for English--necessary, in fact. But as I have mentioned to Pike, I sometimes wonder if he had begun his tagmemic theory with thinking in Zapotec, would he have delayed longer in discovering the usefulness of the two added tagmeme cells? Only one Zapotec language that I know of has a passive construction, and even it is very limited. In analyzing Isthmus Zapotec clauses I feel no need for distinguishing the role of Subject as Actor from that of Subject as Undergoer, except on a purely semantic basis. 'Joan heated the food' vs. 'The food got heated' (never with an agent expressed) is only a matter of causative vs. noncausative in the morphology of the verb. Other intransitive clauses, such as 'Joan laughed,' have the same noncausative morphology as 'The food got heated,' in contrast with causative 'John made Joan laugh.' These two sets of clauses are expressed in Zapotec as follows:

bi-si-nda? Juana endaro 'Joan heated the food'
Comp-Caus-hot

bi-nda? endaro 'The food got heated'
Comp-hot

bi-si-žiĵi Betu Juana 'Bob made Joan laugh'
Comp-Caus-laugh

bi-žiĵi Juana 'Joan laughed'
Comp-laugh

I do not intend to assert that the concepts of role and cohesion might never be useful in Zapotec. Further study into the

referential hierarchy or the subtleties of attitudes involved in the use of any given grammatical construction may well reveal such a need.

I am reminded of still another example of how one's starting point in developing a theory can affect the result. When Longacre began to apply his labeled levels of grammatical structure to levels higher than sentence, he was in a workshop in Philippine languages. The source of his study was written texts presented to him by his various SIL consultees in that area. The result was that Longacre's levels above the sentence were the total discourse, then (frequently) episodes, then paragraphs. Dialogues are analyzed as a type of paragraph. Both whole discourses and paragraphs could be embedded.*

In contrast, Pike sees all of language in the context of total human behavior. No bit of language data should be looked at as a complete unit without first seeing it in that context. Thus the Pike hierarchy begins at the top with social interaction, with the most expanded unit a conversation and the minimum an exchange. Exchanges, then, comprise various monologues, the point at which Longacre began. As the Pikes look at a written text, presumably it is, at a minimum, a part of an interchange which might begin "Tell me a story about a rabbit."

So, in conclusion, my personal experience in linguistics and my observation of others tell me that our approach in analysis may be in part a result of the structure of the languages we study, together with their sociolinguistic setting. But inevitably we are indebted for many of our accomplishments to our instructors, our predecessors and our colleagues. I dedicate this presentation to the many who have helped me along the way, and I encourage others to make such acknowledgments from time to time.

* I sent a draft of this paragraph and the next to Longacre to check on his opinion. He answered that he thinks the statements are true. However, he added the following: "I believe that I have outgrown my starting point. I distinguish dialogic and monologic (bad word) discourses. I believe that especially narrative discourse springs from a conversational matrix--telling anecdotes off the top of the head! 'When I went downtown this morning...' etc."

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INAUGURAL LECTURE

PERSON BEYOND LOGIC, IN LANGUAGE, LIFE, AND PHILOSOPHY

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0. PERSONAL KNOWLEDGE IS RELATED TO LANGUAGE.

Categorization of things, and their naming, allows us to build our emic world views, combining physical and mental experience. An attempted philosophical deletion of matter and of the physical world may lead to an "unbelievable" idealism. Alternatively, an attempted philosophical deletion of mind and of free observer choice may lead to an "unlivable" life. An emic view links the two. Knowledge is perceived, here, as the recognition of items within patterns of patterns. A known item is an integral part of a larger system--but systems may intersect with other systems cross-dimensionally and hierarchically, tying thing to knowledge, world to mind, and verbal to non-verbal behavior.

This paper is a further development of one published in 1983 in the LACUS Forum asserting that, in one sense, a person is more fundamental than logic, since logic is developed by persons. Since the basic premise of this paper cannot be proved, but must be accepted--by anyone who chooses to do so--as growing out of experience, or as in-built in the genes of human nature, I will use one or two illustrations from experience to illustrate the points, rather than attempting extensive argumentation of a logical type which--as already implied--could not be successful in proving it. For example: an automobile without a driver is not useful for a person who is seeking to find his way through a maze of roads; but an appropriate person without an automobile can traverse a continent on foot, with expected delay and pain. A set of formal rules, or a system of logic, is a useful tool for the person controlling it, but an automobile system stagnates if no person steps on the starter. A bee can search for the sources of honey--but not put it in words; people can play baseball, however, and talk about it.

1. PERSONS MUST JUDGE "SAMENESS".

What is the "same"? Persons can know sameness relative to their interests, needs, and experiences. A boy may want to find the same river and step into it (without knowing about Heraclitus), or he may want to find any one of a certain kind of fish, categorized by his friends as the long-nosed kind. Or he may ask for the paper later--with /p/ vs. /l/ reacted to by him as different, along with his reaction to a difference between the grammatical sequence of "object and time" in contrast to the sequence "adjective and noun". Both reactions reflect his knowledge of sameness as an "insider" to his native language system.

"Outsiders" to a system (or deaf persons inside one) may miss some clues to sameness needed for appropriate behavior. (Bees, like boys, may search for honey--but it is boys I am discussing here; and boys, not bees, can play baseball or discuss its difference from croquet.) Units which the boy, as the insider, normally calls the same, are treated here as emically the same. Components or units treated as different by the outside analyst are treated here as etically different. But the "insider," after training, may learn to notice differences which had escaped his attention until then. For example, it may take some training before the American boy can notice the difference between the initial aspirated [p'] and the medial unaspirated [p] in paper. (For an extended discussion of two different approaches to emics and etics, see Headland, Pike, and Harris 1990. Emphasis--in the Pike view--is to be placed on moving from a generalized outsider "etic" system to the inside structural sameness for the native viewpoint; but focus can be placed upon the difference between the physically observable etic data, versus the inside mental emic structure--a Harris emphasis.)

It is difficult to define the meaning of a word in relation to its "sameness" in all contexts. Note, for example, (cf. Webster's Collegiate Dictionary, 1929, 3rd edition, p. 454) that "have" can have several meanings--for example to hold in possession; to know, to be compelled, to keep in mind, to be in relation to, to give expression to, to perform, to assert, to obtain advantage, to effect, to proceed promptly, to suffer from experience. Compare: You can't have your cake and eat it too; it has three parts; I have a letter to write; I have enemies; I have bad news; he had the gall to refuse; I have a cold; I had a look at that; I had a fight; I had an opinion; I had the children stay; we have no more of that; he has only a little French; he had been had; I had my rights; she had a baby; they had dinner. Sameness in such contexts is "fuzzy"--but partially identifiable in relation to the speaker's affirmation that they are "the same word," differing in contexts; with uncertainty or "gradience" or "fuzziness" as to just where individual speakers will draw the line. (For considerable discussion in terms of categorization, in relation to "prototype-based categories" including centrality, and gradience, see Lakoff 1987:5-13, 270-74). For limits to such variability in behavior, note Quine 1987:69 "The constraint imposed by social tradition is the gyroscope that helps to keep the ship of state on an even keel."

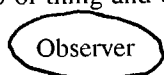
2. THE PERSON, AS OBSERVER, IS LINKED BY WORDS TO THINGS, TO THOUGHTS, AND TO SOCIETY.

A person does not live in an abstraction away from things or from other people. In part, one knows many things only as they have been categorized, classified, and identified by his society as emically in some sense the same as certain other things. (We affirm with Kant--see Ellington 1977:55, Section 312--that we do not know the "thing-in-itself".) In order to know myself I need to know "it" and "you"; we live as interacting in our world. From this viewpoint an abstractionism does not exist, which treats our world as composed just of ideas, since (partly known) things are there to be categorized. Likewise a world of reductionism of self, along with things, to physical elements alone, does not allow us to be ourselves in living. Both

physical form and mental, meaningful, interactional thought are needed for living as persons.

People must recognize sameness in talk, thought, and thing. The three must be combined. Abstractionism, for this purpose, will not do, if it rejects things as known. Reductionism will not do, for this purpose, if it rejects the complexity of thinking about things. Partitioning, likewise, separates the bits interlocking with each other in thought. In this connection, see my poem *Matter and Mind*, in my LACUS paper 1985a:45-46. I do not want a "linear" projection from observation to abstraction, nor from mechanism to idealism; but I want an interlocking circle including me-and-thing-and-thought-and-thing-and-me--all overlapping, partially, emically.

I reject, then, Figure 1a, where things are idealistically enclosed in the observer; and I reject Figure 1b, where all of the observer is included in the physical thing. On the other hand, Figure 2a separates reason and thing too strongly. Figure 2b is closest to my thinking, showing partial but not total overlap of thing and observer.



[including thing]

Figure 1a, with
observer only



[including the observer]

Figure 1b, with
things only

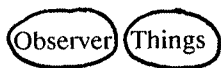


Figure 2a, with
complete separation
of person from things

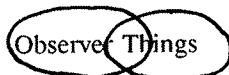


Figure 2b, with
partial overlap of
person with things

3. A PERSON MUST BEGIN WITH BASIC UNPROVABLE PRESUPPOSITIONS.

It was the philosopher Angus Sinclair (cf. 1951, and see Pike 1987:77), who taught me forty years ago that, when one seeks for one's ultimate logical starting points, such basic philosophical roots cannot themselves be proven to be true by logical procedures. A person must begin with unproved premises, accepted as true, before he can use them in syllogisms to prove that statements deduced from them are true.

A blind person cannot see with his eyes some materials in front of him. So, with unprovable presuppositions, people are not always able to sense some of the ideas they are building on without being aware of it. On the other hand, false presuppositions, when held too strongly, can poison a philosophical outlook. A web-like starting point may be unintelligible to a person who sees only in a linear-logical way. (Compare the patterning discussed in Section 6, below.) The seed of an oak tree is much more complex than the eye can sense--and more complex than I would know how to describe in logical terms.

Based upon my belief that this restriction is true, I conclude that for understanding human nature person must be given priority above logic. In the succeeding sections, therefore, the starting presuppositions are stated as believed, not as derived from further presuppositions--and often may be unarticulated, or unnoticed. (As someone has said: A fish may not know that it is water it is swimming in.) See Figure 3, for a poem of mine which tries to emphasize this viewpoint.

PERSON BEYOND LOGIC

Logic stretches thought
Along long linear paths
To wander woods of life
Where trees shade grounds of faith.

Breezes from minds blow leaves
To scatter, unrooted there--
Though feeding further forest
Where other thoughts may root.

Persons build the ground
Of thoughts unthought by them--
Melted and moulded
In oven of brain through words.

Figure 3, a poem, written for this paper, trying to catch the feel of one's presuppositions as coming ultimately from person, rather than from logic.

4. A PERSON CHOOSES VIEWPOINTS.

The focus chosen by a person may vary from moment to moment; it may be arbitrary, and temporary. One may focus to the left or to the right. One may choose to look toward the mountains or toward the valley. One may specialize for the moment on society or on molecules.

By experimental syntax (e.g. Pike 1988) one may in English, for example, deliberately shift sentence order to change attention, or may vary the selection of clause types to give structure to the paragraphs of a narration, or may change the re-telling of a poem to shift focus from thing, to time, to place, to a larger including item, to purpose, or to hypothetical negations of the starting point. In a more technical sense, we may say that observer attention may shift from a poetical perspective to one which is more concrete.

A house may be viewed as a particle unit with no notice given to its structure and surroundings, or it may be viewed as a wave unit under construction--i.e. as not having reached the future nucleus of its completion. Or it may be viewed as having a field pattern of porch, living room, and kitchen, plus upstairs and cellar. Such particle, wave, and field viewpoints

may also be described (cf. Pike 1985b) as static, dynamic, and relational; or as item, process, and relation.

One can discuss a particular poem from the viewpoint of the writer, or from the viewpoint of an analytical reader. In a poem discussing the discussion of poetry, I have insisted (by implication) that the writer has the right to say what he thinks--even as the reader may demand the right to interpret the poem as he, the reader, thinks. Note, for example, Figure 4 with two poems (Pike 1986a:107) discussing this ironically. Note, also, that there is personal choice to write in terms of poetry versus narrative, relating directly to phonological hierarchy or grammatical or referential hierarchy (see Section 6).

INKBLOT POETRY--A QUERY

"Me. trying to say something?"

"Oh. no--you're just the author.

Someone else must say

What's said . . . Right?"

(Author's rights are

Semantically bankrupt

Faced by interpretive

Staked-out claims

Affirming that poems

Are pretty inkblots

Awaiting readers`

Dreamy impositions! . . .

But reader "re-write" rights? . . .

"And when you are

Saying I said--

Are you then 'saying'?"

"No, just throwing words

At other unhearing wordless 'things'."

COLLAGE--A REPLY

"And what did you mean?--
 I don't know,
 And you didn't say.
 Why won't you?--
 Don't you know?--
 "I like relations--
Patterns, not logic--
Feelings, not thoughts--
Any words will do.
 "Just let them collide
 In collage. It'll
 Bundle them up.
 "Don't get cross with me--
 Cross-word puzzles can be fun!--
 "For us elite."

Figure 4. poems from Pike 1986a.

5. A PERSON UNDERSTANDS THINGS, EVENTS, OR OTHER PERSONS, IN RELATION TO THEIR OCCURRENCE IN SLOT, CLASS, ROLE, AND COHESION IN THEIR RELEVANT ENVIRONMENTS.

Numerous features contribute to one's understanding of one's environment. Four such basic features may be mentioned here (cf. Pike and Pike 1983):

(1) A person needs to know where it is appropriate for words or things or person to occur (i.e. what position--slot or slots--they may appropriately be found in). Does a certain word occur as a subject of a sentence? Does John fill the position of being a son in the family?

(2) In what set (class) of items does this unit occur, as appropriately found in the same slot? Do John and Bill both serve as subjects of a sentence--or as members of the same family?

(3) What cause, or purpose (role) is by nature or by personal intent involved in the occurrence of the item? Did John go to the store in order to buy groceries? Did he die from an automobile accident?

(4) What background of life and situation (or what phenomenological horizon--cf. Reeder 1984:95, 128, 168, 183) contains and in part controls the relation (cohesion) of the unit or event to the larger situation? Is John too young to be riding a motorcycle? Does the subject of the sentence agree, in number, with the verb?

These relations can be partly paraphrased as follows: Occurrence in relation to a slot sequence is syntagmatic. Membership in a class of replaceable units is paradigmatic. The relations to role, including the intentions of speakers, sentences (sometimes different from the surface meaning of the words) may in part be called pragmatic. The cohesion relation to a background horizon might in some sense be labeled systemic.

I include a brief poem (from Pike 1984:1891, see Figure 5) to illustrate this problem from a native viewpoint. Then, from my tagmemic

viewpoint, I show very briefly (in Figure 5b) some components of the referential hierarchy of the poem as a whole.

WHO CARES?
Mother named me;
Culture maimed me.
Alphabet none;
Socially alone.
Who cares?

Figure 5a. A poem in which I try to "walk in the shoes" of a person from a "deprived" culture.

Slot	Class
"Alone"	Person, without alphabet
Role	Cohesion
Damaged relation	A culture

Figure 5b. with the poem, as a whole, shown in relation to referential slot, class, role, and cohesion.

6. A PERSON GROWS IN KNOWLEDGE THROUGH THE INTERSECTING PATTERNS OF THE HIERARCHIES OF PHONOLOGY, OF GRAMMAR, AND OF REFERENCE.

Knowledge requires pattern. Complete randomness does not get us very far. Foot movements need to come in sequence, if we are to walk. Living (or lived-in) patterns are hierarchical. A part-whole hierarchy has smaller parts of larger parts. The nose is part of the face; the face is part of the head; the head is part of the body.

A taxonomic hierarchy is involved in naming (categorizing), or in referring to items not yet known clearly. An animal moving peristaltically may be put into a class with snakes. If it "rattles" it may be called a rattlesnake.

In tagmemic theory (of the Pike and Pike variety [1977] 1982) there are three different linguistic part-whole hierarchies: phonological (sound, to syllable, to rhythm group, to poetic form, etc.), grammatical (morpheme to word, to phrase, to clause, to sentence, to paragraph, to monolog, to dialogue, etc.), and referential (relations, identities, events, complexes of events, vectors, and macro events). The phonology provides physical manifestation; the grammar determines the order, or sequence, in which material is told; and the referential structure includes the order of events as they happen, along with the background social and physical structural context

of the happening which is under attention. (For a contrastive analysis of the four cells of grammar versus reference in a text, see Evelyn Pike, in Pike and Pike 1983:4-73. For an extensive four-cell analysis of the phonology of a poem, see K. Pike, in Pike and Pike, 1983:74-103.)

The search for knowledge includes the search for patterns of patterns of intersecting hierarchies. These may be utilized by persons without their having learned to analyze or articulate the referential components involved. Borders between the hierarchies may be either isomorphic, or distinct. Puns often exploit non-isomorphic borders: Why is a mouse like a pile of hay? Because the [kæt] eat it--where /kæt/ simultaneously represents cat will (eat mouse) and cattle (eat hay).

For some structural differences shown via experimental syntax, in which the referential structure of a text is unchanged by some kind of paraphrase, but the grammatical and phonological structures are modified, see Pike and Pike [1977] 1982, and Pike 1988. A paraphrase involves some such modification of grammar, and or phonology, without referential change. One way of creating paraphrase, for example, is to select some item from the slot cell, or from the role cell, or from the cohesion cell, and put it into focus via class membership, grammatically. This changes the order of presentation, and the kind of statement, but does not necessarily change the content or horizon actually expressed or left as implicit. See this for the multiple (kaleidoscopic) re-telling of the background implications of a poem, in Pike 1988.

No one of the hierarchies is autonomous (see Pike 1985). Grammatical structure cannot be manifested without physical (e.g. phonological) manifesting elements. Nor can it say anything relevant apart from some referential content. Similarly, referential content cannot be explained or expressed without the use of the phonological and grammatical carriers. Similarly, if matter is separated from meaning (or from relevance to an observer) an autonomy is postulated which tagmemics rejects. Any reductionism is likely to crush all data into one purported autonomous framework. But--in my view--if "everything" is nothing more than the movement of molecules, it leads to unacceptable behaviorism or materialism. If all is reduced to mental action, it leads to an unacceptable idealism. If all behavior or truth is related to non-movement, it leads to a rejection of the wave component of units. Similarly, if all units are treated as exclusively change or flux or process, it deletes the possibility of treating units as particles as reacted to by observers. The three hierarchies each need their levels of structure, with emic units as reacted to, or focused on, by inside observers at all levels.

From one point of view, the "top" of a hierarchy is simpler for the observer to recognize than the bottom units are. It is easier to recognize a friend from a distance, as a whole, than it is to identify her by the shape of the ear behind the hair. A reductionism, in this sense, hides reasons from society rather than clarifying them for society.

7. A PERSON NEEDS HIS LANGUAGE, AND PARTICIPATION IN HUMAN UNIVERSALS, TO HELP HIM DEFINE HIMSELF IN SOCIETY.

For more than half a century I have invested much of my time and energy (i.e. since my linguistic start in 1935) in trying to help groups which seem culturally marginal to themselves and to others. I wanted to help them achieve self esteem and confidence in their own personal value, and also to achieve integration with their national society. Part of their problem lies in an irreversible (but apparently good) feature of human nature--in the normal, universal, implicit conviction that one's mother tongue in part defines the "me"--it helps define my own inner person. If, then, I learn that my language is of low esteem, then I myself may appear to myself as being of low esteem. But in today's world the presence of alphabet and dictionary are sometimes treated as defining features of an esteemed language. (See Figure 6--and the earlier Figure 5, for a poem of mine commenting on this problem.)

SOCIAL SHAME

Soul-shame
Maiming is paining,
Grown in vacuum
Of preliterate lack
Of social credit rating.

Figure 6. In this poem I emphasize the problem of failure to have social status in some contemporary societies, if one is preliterate.

Therefore, if we can help a small isolated group obtain an alphabet and a dictionary (with literature utilizing these tools), we can help them realize this truth--that, as persons, as individuals, their selves are just as valuable as that of the president of their country. In addition, it can help them enter more comfortably (and usefully to others) into national affairs economically, educationally, and culturally. (For bibliographical references discussing these problems, see Pike and Keller 1984.) Compare an instance of ostracism by Mixtec people, of a man accused of adultery. I call this the loss of "social credit rating" in Pike 1986b.

The combination of a kind of ostracism across cultural levels because of a lack of literateness, and the ostracism within a particular culture due to moral lapse, suggests that it would be helpful to list some kinds of universals--"absolute" human universals--which would include these as special instances. I suggest a few of these, that would seem very basic indeed to me, suggesting first a positive (universally approved) general component, and its negative (universally disapproved) component. I will also suggest--but not prove--that the negative components arise only as rejections of (or as the overriding of) the built-in positive principles within human nature.

- (a) Cultural Universals: People want some kind of esteem, or appreciation, or approval by their society. Negatively, they are unhappy with ostracism, disapproval, or any kind of low classification within a layer of the society, or across layers of the society. Positively, there will be some kind of social structure which allows people to work together, to benefit by joint efforts, and to enjoy community fellowship. Negatively, this can be pushed to forced tyranny militarily, economically, or culturally.
- (b) Moral Universals: In every society there exists the positive approval of being helped by others, or of culturally-approved possessions being respected and left undamaged. Negatively, theft of some kind, or the removal of things which are considered to be one's personal or social rights, may be disapproved. In addition, there will be approved relations between the sexes; with disapproval, negatively, of some kind of departures from that norm.
- (c) Aesthetic Universals: In every society there is some kind of approval of materials which are considered to be beautiful or pleasing to the eye or ear, or to tidiness in the environment. Negatively, there can be annoyance with, or disapproval expressed about, items which are considered to be ugly, or untidy.
- (d) Intellectual Universals: In every society there is some kind of desire for wisdom in oneself, or in some of one's respected colleagues. Negatively, such knowledge can be despised as somehow being nasty pride. There is a recognition of wisdom (or of wise people) present in any society, with some desire for this to be obtained and utilized. Negatively, this can lead to a desire for a kind of intellectual development which leads to pride, and to domination of self by others.
- (e) Physical or Economic Universals: Every society will have some materials which it prizes for food--or for shelter or for other needs. And it may have some way of utilizing these for exchange. Negatively, the economic handling of such materials, with integrity, may be degraded by theft or cheating; and food may be poisoned or downgraded through anger or enemy action. Hunger will be a universal associated with these matters.
- (f) Religious Universals: Every society has members which attempt some explanation, beyond the society itself, for the world structure. Positively, this can lead to various kinds of theism. Negatively--from the point of view of the theist--there can be a "secular religion" which specifies belief in natural or physical sources as the origin of all materials and persons. Alternatively, some scholars may consider mechanism as positive, and theism as negative.

In each of these, note that in some sense person is above logic or above the purely physical material. (a) Esteem involves personal opinion. Social universals include personal struggle to exercise some control, whether for good or for ill. (b) Moral structure relates persons to their character. (c) Aesthetic judgments come from individuals or from a society of persons. (d) Intellectual universals require individual persons who can learn. (e) Economic or physical universals require persons who eat the food, or who

choose to raise crops, and who sense their physical environment. (f)
 Religious universals require presuppositions which are held by individuals-
 -not merely ideas floating in a nothing-land.

Tagmemics, as a linguistic research system, has focused on a different set of absolute universals. For example, the introduction to Pike and Pike ([1977] 1982 2nd edition) has emic units in all behavioral activity, subdivided into contrastive-identificational features, variability and physical manifestation, and distribution in appropriate places. It has hierarchies which deal with the phonological, the grammatical, and the referential materials at various levels and with various kinds of complexities. It deals with context, requiring both form and meaning elements, recognition of change in relation to components shared by the changed elements, and discourse background within which these units and changes occur. In addition, it has observer perspectives as static, dynamic, or relational (that is, particle, wave, or field), and essential tagmemic components of slot, class, role, and cohesion. These materials we have discussed extensively elsewhere, and I won't attempt to carry them further here. (For the reader who is un-initiated in tagmemics, the simplest way of approaching them is through Pike 1982.)

8. PERSONS ARE LINKED TO LINGUISTICS AND LIFE IN SOME RECENT BIBLIOGRAPHICAL REFERENCES.

Different starting points, different paths, and different directions can all lead to the same end point, if the person walking is drawn there by the same "magnet". So, likewise, different theories of language, life, and philosophy, can lead to related conclusions if the authors are eventually strongly stimulated by the relevance of human nature which affects the presuppositions of all normal human experience. We do not need to be concerned about temporary differences in theory, in procedure, or in philosophical perspective, if we are all ready to react to data as experienced by us and, eventually, to leave room for these different kinds of experiences in our presentation of patterns within patterns of human belief, action, and presupposition. Unless our differences are based upon incompatible convictions as starting points, we can enjoy the work of one another today, stand on the shoulders of our predecessors of yesterday, and enjoy walking in the paths of progress pointing toward the future.

With this in mind, the present section selects a few relatively recent publications to suggest that there is a growing and converging interest on persons as being at the heart of linguistics, knowledge, and philosophy. (For calling my attention to a number of these items, I am indebted to Maria Ayala, and to some of my former graduate students.) In these materials, which I am mentioning briefly, I am not attempting to give a careful comparison between their approaches in their relation to my tagmemics. A careful study is needed to pinpoint the areas of overlap or difference, or to point out areas where joint research might be helpful.

The most extensive discussion of tagmemics in relation to dialogics and to religious literary criticism is found in the dissertation by Felch, 1991.

Tagmemics in reference to philosophy and religious Calvinism is found in Poythress 1976.

A philosophical discussion of the emic and etic distinction, in relation to some philosophy in Spain, is found in Bueno 1990. A dialogue discussing different views of emics and etics, from a theistic versus cultural-materialistic perspective, is found in Headland, Pike, and Harris 1991. A more general philosophical discussion considering reality viewed from the perspective of an atheist (Arbib) and a supernaturalist (Hesse) is found in alternate chapters of their book of 1986, discussing reality.

Philosophers committed to phenomenology share some components with tagmemics--which I found out to my surprise when I first met one of this kind of philosopher--through the relevance of the observer to philosophy. They also are interested in "horizon"--background related in some degree to that treated under cohesion and reference in tagmemics (note Mohanty 1989, and Reeder 1984). For an extensive discussion of the relation between tagmemics and phenomenology, see Kissell 1991:26-34, 67-105, 108-110; both theories are interested in observer and his relation to the environment.

Studies in cognition are adding more material which overlaps with tagmemics. For Margolis (1987:1), "everything is reduced to pattern-recognition." And (ix) it is "impossible to reliably derive beliefs from logic + interest." Peck (1990) has an interesting review of this volume. Cognition relates, further, to the relation of categories to mind, in Lakoff, 1987. A general selection of articles discussing the relation between mind and cognition is that of Lycan 1990. For connectionism, as an approach to show how networks serve as pattern recognition devices and relate to cognitive science, see Bechtel and Abrahamsen 1991. For the relation of self and identity to contemporary philosophical issues, see selections in Kolak and Martin 1991. For a psychological interpretation of the self, as "outcomes of this process of meaning-construction"--"not isolated nuclei of consciousness locked in the head," see Bruner 1990:138.

Discussion of language universals, and typology, is seen in Comrie, with discussion of different kinds of universals--for example "absolute" types (1981:19-22).

One new approach to science which holds some promise of interlocking with certain tagmemic interests is the study of "chaos", where scientists are "looking for the whole" (Gleick 1987:5). And instead of turning "toward reductionism" there may be some emphasis on process rather than state, and "attractors" (p. 4) leading towards patterns where there is not identity, as in snowflakes (p. 313). (It is easier for us to recognize a snowflake by its total pattern than by attempting to study the arrangement of its "controlling" atoms.) This gives me encouragement in relation to my emphasis upon the study of languages hitherto unknown to us, entering into that study by way of a "monolingual demonstration", where, without an interpreter but by gestures, one begins to learn words, phrases, grammar, and conversational structure. If one points toward a rabbit and gets an appropriate sentence mentioning it, Quine and Ullian (1978:28) call that an "observation sentence"--and say that "observation sentences are at the

bottom edge of language ... It is ultimately through them that language gets its meaning, its bearing on reality. This is why it is they that convey the basic evidence for all belief, all scientific theory." Such views seem to me to help justify a philosophical starting point with person above logic, even though logic is one of our most important "screwdrivers" to tighten up rational views of materials which we have seen loosely around us.

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INVITED LECTURE

DANTE AS LINGUIST

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Two among the so-called minor works of Dante Alighieri (Florence 1265 -- Ravenna 1321) are of interest to linguists since they concern themselves, at least in part, with language: *Il convivio* and *De vulgari eloquentia*.

Il convivio 'The banquet' was composed, in Italian, probably (no exact date is known) during the first decade of the 14th century. It consists of four *trattati* 'treatises' in prose, all but the first of which are preceded by a *canzone* 'song, poem' in verse; another eleven were projected, but never written. If completed, the work might have been a so-called *tesoro* 'treasure, thesaurus', a handbook of knowledge, philosophy, and morality. But even as it stands, the *Convivio* is the first example of scientific and philosophical prose written in Italian.

The first *trattato* contains an extensive justification and praise of the vernacular, as opposed to Latin, which was the common tongue for any kind of serious writing in the Middle Ages. Dante's three reasons for this preference for Italian are (1) his conviction that the Italian *canzoni* ought not to be joined to commentaries, the *trattati*, in Latin, (2) his desire to benefit more readers than those who knew Latin (even though the attainment of literacy was, in fact, for most people accomplished through instruction in Latin), and (3) his love for the common idiom, which he called *vulgare*. (I shall use *Volgare*, plural *Volgari*, henceforth also in English in the appropriate context.) Dante complains about "the wretched people of Italy who praise the *Volgare* of others but deprecate their own".¹ (1.11.1.) Even the eminent Tuscan author Brunetto Latini (c. 1220-1294), Dante's predecessor and mentor, wrote his *tesoro* in French. True, he was living in France at the time; but he did declare that "this language [French] is the most delightful and most common to speakers [in Italy?]." (p. 18) Many Italian authors of the 12th century and thereafter used, under the influence of the troubadours, the Provençal language. And Petrarca (1304-1374) reaped from contemporaries more praise for his Latin writings than for his Italian *Canzoniere*.

The first treatise of the *Convivio* ends with a hope and a vision:

¹ Except for the verses from the *Divina Commedia*, which I cite in the translation by the American poet John Ciardi, translations from foreign languages are my own; they render the original as literally as possible and as freely as necessary. (Dante's Latin is not nearly as good as his Italian, but I shall not attempt to improve upon it in translation.) For biblical passages I quote the King James version.

This [Vulgare] shall be the new light, the new sun, which shall rise when the old sun [Latin] will have set, and it will give light to those who are in shadow and darkness on account of the worn-out sun, which shines not for them. (1.3.12)

For a medieval writer, this is a strong and unusual (though, in this instance, rather inelegant) statement favoring the vernacular over Latin.

De vulgari eloquentia 'About popular speech' or simply 'About Volgare', is composed in Latin (a rather pedestrian and not very graceful Latin, such as was practiced by hundreds of authors who attempted to imitate Classical Latin models but hardly ever succeeded). It, too, was probably written in the first decade of the 14th century, but after the *Convivio*, in which Dante had announced a "little book which I intend to write, God willing, about the *volgare eloquenza*." (1.5.10).

This work is of much greater interest to the modern linguist than the *Convivio*. But since the latter has been transmitted in forty-three manuscripts as compared with but three for *De vulgari eloquentia*, it is clear where lay the preference of the reading public. Of the *Divina Commedia*, however, the 14th century alone produced over one hundred manuscripts (each of which must have cost a fortune to the buyer).

De vulgari eloquentia, too, has remained a fragment: of the planned four Books, only two are extant. (Perhaps an author busy with the *Divina Commedia* has little time for other enterprises.) Of these, only the First Book deals with questions of language. It begins thus:

Since I find no one who before me has developed some theory concerning popular speech, and since I see that precisely such a speech is highly necessary for everyone, with not only men but also women and children striving to rise to it to the extent that nature permits... I shall seek to be useful to the speech of the ordinary people. (1.1.1)

What exactly does Dante mean by *vulgaris eloquentia*, common speech, or simply Volgare?

I say that I shall call *vulgarem locutionem* that which children become accustomed to through those who live with them from the time they begin to pronounce words; that is, to put it more briefly, I affirm that Volgare is the language which is learned without rules merely by imitating the mother. From it we derive also another language of secondary formation which the Romans called *grammatica*. This secondary language the Greeks also have, and so do others, but not all; and only few persons attain mastery of it since only with the passage of time and arduous study do we acquaint ourselves with its rules and its art. Of these two, Volgare is the more noble, be it because it is the first which humans have used, be it because we have it by nature, while the other is rather a creature of art. To treat of the nobler one is my intention. (1.1.2-4)

As regards the learning of the mother tongue, we have today no more profound a theory than has Dante; indeed we have no general theory of learning. The "innate theory of language" and the "innate universal grammar" possessed by the child are mere mouthings by generative grammarians and latter-day "theoretical" linguists: neither of these alleged instruments for learning has been, or can be, shown to exist. What appears obvious is that as humans we are born with the faculty of being learners of a language -- by means of a process, however, that, in view of the limited capacity of an infant or a young child, cannot be an intellectual one (like that at work, later in life, in learning chemistry or calculus or, beyond a certain age, a foreign language); rather, first-language acquisition is achieved by some kind of non-intellectual short-cut, of the workings of which we know next to nothing. Saying that we are "programmed" to be speakers, as we are programmed to be bipeds, still merely states but does not explain. For Dante, of course, speech is a gift to mankind from God, and no further explanation is needed.

The Romans' *grammatica* refers to the literary language, Classical Latin, the *Schriftsprache*. It should be noted that Lat. *grammatica*, like Greek τέχνη γραμματική (the title of the Greek grammar by Dionysius Thrax, c. 170-90 B.C., the father of all grammarians), is cognate with the verb γράφειν 'to write', thus betraying the type of usage it is concerned with: it is not the *vulgaris* (cf. *vulgus* 'the great mass, the common people') which one learns at mother's knee. Of course, this does not preclude that some children, if raised in the appropriate (some would say proper) surroundings, learn *grammatica*. But Dante's view of the relation between *grammatica* and *Volgare* contains notions that I have emphasized, in the Latin context, for several decades: *grammatica* is derived from *Volgare* (not the other way around); *Volgare*, or rather *Volgari*, that is, dialects of Spoken Latin, coexisted with *grammatica*; from these dialects, and not from a post-classical *Vulgar Latin*, seen as a corruption of Classical Latin, are derived the modern Romance dialects -- though of course not linearly and severally.²

It is ironical, however (and this is the first of two ironies in the story: see below), that while Dante declares *Volgare* to be nobler than the artificial, or at least artful, literary Latin language, he at the same time seeks, as will be seen presently, an Italian *grammatica*, a *Schriftsprache* for all Italians, that is distinct from, and superimposed upon, the numerous *Volgari* of Italy.

Since speaking precedes writing for every person and, historically, in every speech community, *Volgare* is

... our true first language. I do not say 'our' as if there might be also another language than that of mankind; in fact, to man alone among all creatures the word was given because to him alone it was a necessity. Neither for the angels nor for the lower animals was it necessary to speak;

² See Pulgram 1951, and 1958, 311-362.

hence it would have been bestowed to them without purpose, and from that nature recoils. (1.2.1 - 3)

Nature -- that is, God -- is purposeful. Angels possess superior intellect that renders speech unnecessary (1.2.4), and animals communicate to the extent needed by what Dante calls "natural instinct" (1.2.5), with each species having its own ways. Here Dante echoes the opinion of St Thomas Aquinas (c. 1227-1274):

I say that nature does nothing without reason, for it always acts for a specific purpose. We see that, while some animals make sounds, man alone has, above the other animals, speech. For even if some animals produce human language they do not really speak since they do not understand what they say. (*In Aristotelis politicam commentarii*, lectio 1)

Underlying this distinction is no doubt the Christian belief that humans do, but animals do not have a soul. While most modern linguists disavow, I daresay, this particular dichotomy, the majority nonetheless hold, like Dante and St Thomas, that animals do not possess the gift of speech.

Dante recognizes also that, though the faculty is innate, its realization as language is accomplished by man on his own:

Opera natural è ch'uom favella
ma così o così, Natura lascia
poi fare a voi, secondo che v'abbella.

(*Divina Commedia*, Paradiso 26.130-132)

That man should speak is nature's own behest;
but that you speak in this way or in that
nature lets you decide as you think best.

The verb *abbellare* (in Modern Italian more commonly *abbellire*) meaning 'to beautify', seems odd in this context, and difficult to translate meaningfully. Should one understand *così o così* 'in this way or in that' as referring to a speaker's personal style or preference, or to the way of his linguistic community? Ciardi's translation of *abbella* 'as you think best' apparently favors the former interpretation; but the contrast, clearly implied, to *opera natural* 'nature's own behest' points to the latter -- which sounds more apposite to the linguist.

Attempts to teach the use of human language to chimpanzees and gorillas, relatively intelligent and engaging animals, and, more recently, to a parrot, about whose intelligence one may harbor doubts, have not gone beyond imparting to them the manipulation of a set of signals they can respond to and even produce non-orally (though the parrot can imitate human sounds). Astounding though these animals' exertions appear to be, to call them "language" either is senseless or stretches the sense of the term far beyond what is normally understood as language among humans.

Dante, the medieval man par excellence, could not but recall some speaking animals in the Bible: the serpent who seduced Eve (Genesis 3.1-5) and the she-ass who complains to Balaam "What have I

done to thee? Why hast thou smitten me these three times?" (Numbers 22.28-30).

To this I respond [says Dante] that in the latter [the ass] an angel, and in the former [the serpent] the devil acted in such a way that these animals used their organs in such a manner that there issued articulate speech like genuine language. (1.2.6)

But being also familiar with Classical Latin literature, Dante is in this context reminded of the story, told by Ovid (*Metamorphoses* 5.294 ff.) about the nine daughters of Pierius, king of Thessaly, who were transformed into woodpeckers yet retained the ability to talk. Dante feels compelled, peculiarly and unnecessarily, to demystify the myth:

If it is said that woodpeckers and other birds talk, I affirm that this is wrong because such an act is not speech but some imitation of the sounds of our voice, that is to say, they [the birds] make efforts to imitate us in that we emit sounds, not in that we talk. (1.2.7)

Next, Dante inevitably must ask to what or to whom humanity owes this gift of language, and it is also inevitable that, being a creature of his time, he should turn to the Bible for the answer. It is, of course, God the Creator of all things who thus endowed Adam and his progeny. A bit more tricky is the problem as to who actually uttered the first words.

That "God said: Let there be light ..." (Genesis 1.3) during the process of creation, Dante simply passes over: obviously there was no one to whom God said this, and presumably God did not need language even to think it. And when God brought before Adam every living creature "to see what he would call them" no real verbal command from God need be inferred; the response was that "whatsoever Adam called every living creature, that was the name thereof". (Genesis 2.19) But no word that Adam actually said is quoted in the Bible. According to Scripture, Dante says,

... we find that it was a woman who spoke before anyone else did, namely, that most presumptuous Eve, when she answered the devil's question ... (1.4.2)

To ask that question, the devil must have used language, which Eve must have understood even though she had not talked before. But since apparently the devil's speech does not count since he is, like God, non-human, it seems that indeed Eve is the first speaker after creation. This primacy on the distaff side, however, strikes Dante as obnoxious.

Although in the Scripture one finds that a woman was first to speak, it is nonetheless more reasonable to believe that a man had talked before her; it is indecent to think that so outstanding an act of humankind should not have issued from a man earlier than from a woman. Thus I believe according to reason that indeed speaking was first given to Adam by Him who in one instance has fashioned him. (1.4.3)

Dante's "reason" does not in spirit contradict the Bible, which, at least in Genesis, does not treat woman kindly or generously: she was created from Adam's rib, and it was she who first ate of the forbidden fruit, seduced Adam to do likewise, and thus became the cause of the loss of paradise. So Dante felt no compunction in granting also linguistic priority to the male sex.

As regards the first word Adam uttered, immediately on being created, in exuberant gratitude,

... I do not hesitate to say that it must be obvious to a man of sound mind that it was the word meaning 'God', that is to say, [Hebrew] *Ei*, be it in question or in answer. It seems absurd and repugnant to reason that anything was named by man earlier than was God, since man was created by Him and for Him. (1.4.4)

But if Adam spoke thus in answering God, which is possible, then, Dante argues, it must have been God who talked first. But an utterance by the divinity, as noted before, need not have been made "in what we call 'language'". (1.4.6)

Thus Dante solved this medieval dilemma by means of an equally medieval verbal legerdemain. But he did so on his own, without being instructed by the Church's *padri* and *dottori*, who apparently had not even noticed that there was a problem.

The next question to be faced was just what language Adam used in this primeval human utterance. The answer, already suggested by the assertion that the first word pronounced was *Ei*, could not be anything other than the language of Genesis itself, Hebrew. (1.6.7)

I affirm that a definite form of language was created by God together with the first soul. And I say 'form' with reference to the vocables for things, to the construction of the vocables, and the [inflexional] desinences of the construction. (1.6.4)

God not only gives to Adam the power of speech, which is implied by his being granted a soul, but also provides him with a ready-made, perfect language. What Dante calls form is in essence the modern linguist's structure, or grammar. It is curious, however, that Dante has nothing to say about the sounds of the language and their selection out of an infinite number of possible noises humans can make with their mouths; no doubt the sounds, or phonemes, are implied in God's creation of Hebrew.

The Bible continues to be Dante's sure guide in explaining how the one paradisiacal tongue was replaced, among many (but not all) humans, by multifariousness. It came about through God's punishment of what was, after man's first hybris of plucking the fruit from the tree of knowledge, his second hybris, namely, the building of the Tower of Babel, the "Tower of Confusion". (1.6.5) However, it is Dante's personal theory, unsupported by the Bible, that the various trades participating in the Tower's construction came to talk different languages, so that

... only to those who were engaged in the same type of work, a common language remained: for example, one for

all architects, one for all those who fetched the stones and one for all those who dressed them; and thus it happened for all workers. And as many were the kinds of labor engaged in the entire enterprise, by that many idioms was mankind divided. (1.7.7)

This is followed by the peculiar thesis, also of Dante's invention, that the higher the grade of work men were charged with -- with architects at the top and unskilled laborers at the bottom of that hierarchy -- the rougher and more barbarous (*rudius barbariusque*) was their new language, the more distant and inferior it was to Hebrew: God punished most severely those who bore the greatest responsibility for the outrage. Indeed, in the *Divina Commedia* Dante has Nimrod, the originator and instigator of the Tower, languish among the Giants in one of the lowest pits of Hell, where he roars forth unintelligible words:

"Rafel mahee amek zabi almit"
began a bellowed chant from the brute mouth
for which no sweeter psalmody was fit.

(*Divina Commedia* Inf.31.67-69)

Vergil explains to Dante that

... he is Nimrod, through whose evil
mankind no longer speaks a common tongue.
Waste no words on him: it would be foolish.
To him all speech is meaningless; as his own,
which no one understands, is simply gibberish.

(*Divina Commedia* Inf. 31.77-81)

But how, then, did the Hebrew language survive?

Those among whom the sacred idiom endured were neither present [at the construction of the Tower] nor did they approve of the undertaking; rather, execrating it profoundly, they ridiculed the foolishness of those who participated in it. And this portion, the smallest in number, was, according to my conjecture, of the seed of Sem, who was the third son of Noah; and from it originated the people of Israel, who used that most ancient language until their dispersion. (1.7.8)

The Bible knows nothing of all this; it merely says

... the Lord did there confound the language of all the earth; and from thence did the Lord scatter them abroad upon the face of all the earth. (Genesis 11.9)

One wonders whether one should admire Dante's courage in winking at the Bible, or smile at his singular exegesis.

Of this first dispersion of mankind after the Tower, Dante delivers a rather fanciful and often plain wrong account, still without biblical authority but relying on various untrustworthy medieval scholars and pseudo-scholars, especially the encyclopedist Isidore of Seville (c. 560-636). Dante believes that those who migrated from Babel used an *idioma trypharium* (1.8.2), by which he seems to mean three related languages, or groups of dialects (diasystems) derived from a common ancestor: in

the east, in both Europe and the Near East (the Byzantine Empire), Greek; in the north, Germanic and Slavic, and also Hungarian; in the west, another *idioma trypharium*, actually the Romance family, Dante's division being based on the three words for 'yes':

... one group says *oc*, the other *oïl*, the third *si* -- as, for example, do the Spaniards [or rather, the Provençaux], the French, and the Latins [scil. Italians]³. That the Volgari of these three peoples are derived from one and the same idiom is evident since one sees that they name many concepts with the same vocables, like *Deus*, *celum*, *amorem*, *mare*, *terram*, *est*, *vivit*, *moritur*, *amat*, and almost all the others. (1.8.6)

Whatever is vague and erroneous in the account of many languages of Europe (and a lot obviously is), Dante clearly recognizes the Romance family of languages and their common ancestry in Latin, thus delivering a respectable piece of historical linguistics. And by the classification in *oc*, *oïl*, and *si* dialects he offers an attempt at establishing a typology.

To be sure, Dante was not the first to be aware of diachronic change in language. Nine hundred years earlier, St Jerome (347-420) remarked (in *Commentarii in [St Paul's] epistulam ad Galatas 2.3.*) that "Latin itself changes ... depending on location (*regionibus*) and with the passing of time (*tempore*).". And as early as the 16th century, two hundred years after Dante, the Sienese Claudio Tolomei, an assiduous and voluble participant in the debate on what a national Italian tongue should be like (the famous *Questione della Lingua*), who had studied and quoted Dante's work, put forward the notion of regular diachronic change and of sound-laws. For example, he observed that Lat. *pl* appears regularly in Italian as *pi*, as in *plenum* > *pieno*, adding that instances of *lt* *pl* as in *implora* instead of the regular *impiora*, are not of the talk on the *piazze* (< Lat. *plateae*) of Italian towns but borrowings from Latin (what nowadays one calls learned forms), promoted by writers and some smart fellow (*ingegno*) so as to enrich the language.⁴

Having ascribed the first great linguistic dismemberment at Babel to the wrath of God, in accordance with the biblical account, Dante wisely refrains from assigning further differentiation, such as that of Latin to the Romance languages and the dialectalization within a given Romance area, to the same divine source. He thereby abandons the medieval servitude to Scripture and enters, however naively in some details, upon the domain of science -- in the present case, linguistics. This astounding break as regards both the presentation of facts and the method of research, is announced, slightly less than halfway through Book One, in bold words.

³ Classical Latin has no word for 'yes'. Provençal *oc* is derived from Lat. *hoc* 'that'; Old French *oïl*, from *hoc illu(d)* 'that', which is *oui* in Modern French; Spanish and Italian *si* from *sic* 'thus'. (Footnote added.)

⁴ Tolomei (1974), *passim*. (The book was written in 1528 and published in 1555.)

I am the one who now must put to the test my reasoning as I intend to do my research into matters in which I am supported by the authority of no one, that is, about the continuous diversification of what in the beginning was one and the same language. And since one moves forward more securely and more quickly along paths already known, let me proceed only with the idiom known to me [Italian], bypassing others: for what is in one seems to be, on reasonable grounds, also in others. (1.9.1)

One could not ask for a more judicious attitude and program of investigation.

The task Dante sets himself is, then, to examine how Latin split into three language types -- *oc*, *oil*, *si* -- and how each of these was further divided into smaller entities, how, for example,

... the speech of the right [western] side of Italy diverges from that of the left [eastern] side⁵ (for the Paduans talk in one way and the Pisans in another); and why those who live near one another still differ in speech, like the Milanese and the Veronese, the Romans and the Florentines, indeed even those who belong to the same kind of people like the Neapolitans and the Gaetans, the inhabitants of Ravenna and those of Faenza, and, what is still more wondrous, those who live under the same municipal government, like the Bolognese of Borgo San Felice and those of Strada Maggiore. The manner in which all these differences and varieties of speech come about will be clarified through one and the same argumentation. (1.9.4)

Dante refers here to the ordering of dialects into what I call diasystems. He begins with the large diasystem of Italian, that is, the class of all dialects that one may conveniently and for good cause subsume under one name, Italian. Naturally, classes, or categories of things do not exist, but are constructed by the observer on the basis of a definition which rests, one hopes, upon criteria chosen expertly and intelligently for a given purpose. From this definition emerges also the demarcation of the boundaries of a given diasystem -- a question with which Dante does not concern himself as regards his Italian diasystem. It is, in fact, a problem that bothers even modern linguists.

Where, for example, along the French-Italian Riviera does the French diasystem end and the Italian one begin? The linguistically relevant way to decide this is to declare which dialect, as one moves from west to east, is the last one that may be regarded as being of the French type, which makes the contiguous one to the east the first in line of the Italian type. Implied are the definitions of linguistic Frenchness and

⁵ This unusual geographic orientation is due to the custom of medieval cartographers to put, not north, but east at the top of their maps; in that perspective, the eastern coast of Italy comes to lie on the left side, and the western on the right. (Footnote added.)

Italianness, so to speak; and on these not all dialectologists will necessarily agree. What often happens in such a case is that the national frontier, which is generally also the boundary separating the official national standard languages, is simply accepted, though on non-linguistic grounds, as the boundary between the two diasystems -- a solution which is, of course, a *pis aller*.

Dante did not, indeed he could not, concern himself with these questions in modern terms. He did, however, divide whatever is to him "Italian", that is, the Italian diasystem, into two smaller diasystems: the "right" and the "left" group of dialects already alluded to. The boundary is constituted by the crest of the Apennines, which form a watershed running almost the entire length of the peninsula. This is not, to be sure, a boundary based on linguistic criteria -- but in view of what I just said about the French and Italian diasystems, we had better not fault Dante on his boundary. Within these two diasystems he makes further cuts resulting in smaller groups of dialects, and he does so (he tells us) on real linguistic grounds, disregarding local proximity and ethnic relatedness -- a procedure that corresponds to that followed by a modern dialectologist. And even one city (the example is once more Bologna) may harbor more than one dialect.⁶ All this is sensible dialectology.

But Dante is astoundingly perspicacious also in other domains.

Since, then, each of our languages -- except the one [Hebrew] created by God for the first man -- has been refashioned at our [human] pleasure after that confusion [at Babel], which was nothing other than the oblivion of the first [language], and since man is a most unstable and variable animal, it [each language] can be neither durable nor continuous; rather, like other things that pertain to us humans -- for example, customs and clothes -- it must change with the distance of place and times. And I do not think that there can be any doubt as regards my phrase 'distance of times'; indeed, I believe that this notion must be firmly maintained. Because, if we scrutinize other creations of ours, we appear to differ more from fellow citizens of the remote past [e.g., modern Tuscans from Latin-speaking Tuscans of antiquity] than we do from our contemporaries in far-away places [e.g., Tuscans and Neapolitans]. I therefore boldly assert that, if the Pavians of long ago were resurrected now, they would talk to the modern Pavians in a strange and different way. Nor can appear surprising what I say concerning one's not noticing that a boy, of whose becoming a man we were not aware, has already become a man: for that which moves slowly is scarcely perceived by us; and the more time a thing requires for its change to be noticed, the more stable we

⁶ For details on the hierarchy idiolect -- dialect -- diasystem, and the use of the term language, see Pulgram 1987.

believe it to be. And I do not wonder if humans, who are all too little distant from wild animals, hold the view that a given city has always remained the same civic unit with the same language, whereas the change in the speech of that city occurs slowly and not without extending over a long stretch of time, while the life of a man by its nature is very brief. If therefore a language changes within the same people, as I said, in the course of time and cannot in any manner remain stable [e.g., English in England], then it necessarily follows that it changes in a different way among those persons who live separately and far away [e.g., English in America], just as, in a different way, customs and clothes change, which are not rendered stable by either nature or convention but come about at the pleasure of the people and by local conformity. (1.9.6-10)

What is, then, in this ceaseless change and dialectalization of an original tongue, the place of a standardized and apparently changeless *grammatica* -- for example, Classical Latin -- which is often referred to as "language" in contrast to the unfettered "dialects"? (See above, fn. 6.) And how did this longevity come about, how can one account for it?

It is by this fact [diachronic change and synchronic variety] that the inventors of the art of *grammatica* are motivated; for this *grammatica* is nothing but an unalterable sameness of speech across times and places. Once it has been fixed by the common consensus of many people, it does not appear subject to any individual arbitrary judgment, and consequently cannot change. (1.10.1)

The "inventors" of *grammatica*, or standard language (better still, standard dialect as opposed to the social and local non-standard dialects) are of course the grammarians, in particular those prescriptive grammarians who determine what is the proper standard either by example or by encouraging, indeed legislating, the imitation of speech they deem worthy. In the history of Latin, it was in the early 2nd century B.C. that the speech of the aristocracy and the upper classes of the city of Rome was thus codified, at a time when the citizens of Rome could and did begin to concern themselves with the "finer things" in their lives. This gratifying socio-economic condition was brought about by internal stabilization and external conquests, in particular by the defeat of the Carthaginians, after more than six decades of exhausting warfare, at the end of the Second Punic War (218-201; the Third Punic War, 149-146, was mostly a mopping-up operation that terminated in the total destruction of Carthage). With the conquest of Greece (146 B.C.), which had for a long time served as a storehouse and model for the higher cultural endeavors of the Romans, the flourishing of the arts received an enormous impetus. The cultivation of the literary arts in particular caused the

striving toward stabilization and codification of a classical language to be greatly enhanced.⁷

Naturally, spoken non-standard dialects remained alive and coexisted with the classical standard; this Dante clearly perceived. Indeed the Latinization of large tracts of Europe over the ensuing centuries created ever more Latin dialects -- which unlike Classical Latin kept changing and ended up as the numerous Romance dialects of today.⁸ The ultimate purpose of the establishment of a standard dialect and its *raison d'être* are not only to forge and further an aesthetic model of "good" language, but also, and in the long run more importantly, to make available a supra-dialectal form of speech that permits the creation of literary, scientific, philosophical, and religious works not subject to the dangers of variability that is the inescapable fate of all *Volgari*. And that, too, Dante understood, though he could not phrase it in our present terms.

Referring once more to the tripartite nature of the Romance language -- the *oc*, *oil*, and *si* types -- Dante assigns certain strengths to each of them: to French in prose (historiography) and in epic poetry (the *Chansons de geste*); to Provençal in lyric poetry (the *troubadours*); to Italian in poetry (the Sicilian School, Gino da Pistoia and his modestly unnamed friend -- who is Dante himself). Yet he grants to Italian a prominent place because

... it leans more [than do other Romance languages] on the *grammatica* [i.e., standard Classical Latin]; and this must appear to anyone looking at it rationally a most weighty argument. (1.10.4)

Nearness to Latin became, after Dante's time, a rationale for tout-ing Tuscan as Italy's national standard idiom. While one can make a good case for closeness in theory, in practice this quality of Tuscan did not matter because the majority of those expected to adopt it did not know, hence felt no sentimental attachment to, Latin.⁹

True to his promise, or principle, to base his further discussion on what is known (see above, under 1.9.1), Dante now proceeds to examine the dialects of Italy. He had already divided them into two major classes, those on the left and those on the right side of Italy; he now names the major regions on either side -- like Apulia, Lombardy, Romagna, etc. -- and draws some linguistic conclusions:

... in one and the other of the two sides, and in the districts associated with them, the languages of the people vary: that of the Sicilians from that of the Apulians, the Apulians' from the Romans', the Romans' from the Spoletani's, theirs from the Tuscans' ... In this matter, I think, no Italian can disagree with me. (1.10.8)

⁷ See Pulgram 1958 344-362

⁸ See Pulgram 1958, 324-343.

⁹ See Pulgram 1958, 57-59.

How many different forms of speech, then, does Italy contain? At least fourteen, Dante says (1.10.9) -- which has prompted many to follow him and declare that in Italy fourteen dialects are spoken. Of course, these fourteen are diasystems, and Dante knows this (apparently better than some modern Italianists): he further divides each of them within its area, sometimes within a city (Bologna is cited again). From this it follows, Dante argues quite properly, that

... if we wanted to calculate the principal varieties [i.e., larger diasystems], and the secondary ones [i.e., smaller diasystems], and the tertiary ones of the Volgare of Italy [i.e., the Italian diasystem], then even in this very small corner of the world one would have to arrive, not just at a thousand varieties of speech, but at many more. (1.10.9)

Here Dante comes to a conclusion that a number of modern linguists have not worked up to, or refuse to accept, namely, that the question is not how many dialects THERE ARE in a given region or country, but how many one CHOOSES TO SET UP. Put differently, the dialectologist is the one to decide how many and which speeches are sufficiently similar, or tolerably dissimilar, to be placed in the same class, the same dialect. (See my remarks, above, on the non-reality of classes in general, and of diasystems in particular.) Of course, one must expect that the dialectologist is a person of intelligence and a trained linguist. At the bottom lies the problem as to where or how one draws boundaries in a continuum. The answer, already alluded to, is that one makes that decision on the basis of a definition that is founded upon expertly and intelligently chosen criteria.

Historical linguistics faces the analogous problem. The question cannot be "When does Latin end and Italian begin?" but must rather be "At what point in the continuum does it appear appropriate to change the name from Latin to Italian?" -- which is determined, of course, by the definition of "Latin" and "Italian". (One may, by the way, quite legitimately maintain that Latin is Ancient Italian, or that Italian is Modern Latin. Anglo-Saxon is structurally as distant from Modern English as is Latin from Italian, yet it is also called Old English, without a change of name.) All this, too, Dante saw, even though he did not, could not, phrase it in modern terms.

But Dante's interest in the dialects of Italy springs also, and probably chiefly, from a less theoretical and more practical motivation. He wants to find out, or determine, which of these numerous *Volgari* shall be the speech of everyone, the national idiom. (I am aware of the terminological incongruity since Italy was not to be a nation in the political sense before the late 19th century; but in the linguistic context the adjective "national" is innocuous and fitting.) No better way for finding out than passing the dialects in review to investigate their suitability.

Since the Italian *Volgare* sounds so diversely in many varieties, let us hunt down the most decorous, the most illustrious speech of Italy; but so that we may have an

unobstructed road for the hunt, let us first remove from the forest the underbrush and thorny growth.¹⁰ (1.11.1)

In Chapter 11 Dante conducts his search mainly on the right (western) side of the peninsula. And since the Romans, he says, want to be first in everything, he starts with viewing their speech -- and ends up calling it a *tristiloquium* 'a dismal way of talking', the ugliest in all of Italy. But none of the other dialects surveyed in this chapter -- Marchigiano, Spoletan, Milanese, Bergamasque, Aquileian, Istrian, Casentinese, Frattese -- fares better. And none of them is worthy to serve, in Dante's judgment, as *Volgare* common to all Italians. The chapter concludes with the observation that the Sardinians, whose speech is also rejected, are not really Italians -- which reminds one of the interminable modern discussions as to whether Sardinian is a separate language or an Italian dialect. The proper question is, of course, whether one should or should not, in the definition of Italian, make allowance for the peculiarities of Sardinian: if yes, then it is Italian; if no, it is another language, i.e., diasystem. (The common opinion among linguists is the latter -- though some arrive at it not by way of criteria-and-definition but through linguistically irrelevant data like history, ethnos, etc.) Dante even thinks that the Sardinians have no real *Volgare* since they have preserved many Latin inflexions and other archaic, Latinizing, features; "... they imitate Latin the way monkeys imitate humans." (1.11.7)

Chapter 12 is dedicated entirely to an appraisal of Sicilian (which is, of course, a diasystem also -- but Dante was mainly concerned with one kind of Sicilian, as will be seen presently). It is judged "*honorabilius atque honorificentius*" (1.12.1) 'the one that both possesses and confers honor above all others'. This rare praise has its reasons.

The ruler of Sicily until shortly before Dante's birth was Frederick II (1194-1250), a member of the Swabian Hohenstaufen family, but born and residing for most of his life in Italy, and from 1220 onward, monarch of the Holy Roman Empire. Though not very effective in politics within and without Italy, he was no doubt the most accomplished and most progressive sovereign of the Middle Ages, presiding over a court in Palermo that was a center of intellectual and artistic activity where Christians, Muslims, and Jews were permitted to live in harmony unusual for the time. (Only Spain under Muslim rule, up to 1492, merits a like commendation.) His contemporaries called him *Stupor Mundi* 'The Marvel of the World'. And it was at this court that Italian poetry was born, no doubt in emulation of the Provençal troubadours. One cannot really be certain what the original idiom of the Sicilian poets was like, since we know their works only in a Tuscanized version. But it is a fact that "the poets of that

¹⁰ It may be important to point out here that Italian dialects were, and are to this day, very diverse from one another. The speaker of a given dialect does not have to travel very far, not only to become aware that he is hearing a speech different from his own, but also to experience real difficulties of understanding. A Milanese and a Palermitano simply cannot converse if each uses his own dialect. All the more reason for Dante, and for many Italians in the centuries after him, to search for a national Italian tongue, even if an Italian nation did not exist.

first school already aimed for a [non-dialectal, supra-dialectal] koinè, willingly employing words and forms at home on the peninsula."¹¹ In the designing of a somewhat artificial, dialectally not localizable, language, too, the Sicilians followed their Provençal models.

The Sicilian School was much admired in the North, especially in Tuscany, and enthusiastically imitated. Its manner of writing is known as (*Dolce*) *stil nuovo* '(Sweet) new style'. Eventually, Dante became a member of this movement, as did Petrarca (1304-1374). The artful and to a degree artificial style of writing was cultivated by Italian poets for centuries, becoming, if anything, more involved and even obscure as time passed. Hence for many Italians, even educated speakers of the standard dialect, much lyrical poetry is accessible only with some difficulty, or not at all -- as were the poems written in the intentionally complex and intransparent style called *trobar clus* 'the closed (secret, cryptic) way of composing' practiced by some troubadours.

Certainly none of the dialects of Sicily, and of Apulia across the straits, spoken by the common crowd could be the kind of superior Volgare Dante was hunting for. But one is struck by his curious and somewhat illogical attitude as regards the language of the Sicilian School: he praised it highly and he propagated its use, albeit in Tuscanized form, by employing it himself, with the result that it in fact became the basis of an evolving national idiom; yet he did not confer upon it the title of Illustrious Volgare. Perhaps this is so because he viewed it as a municipal or regional form of speech, hence unfit to serve all Italians. Clearly, theory and reality are at odds here.

The next dialects Dante comes to grip with (1.13) are those of Tuscany and Liguria, chiefly Genoese. One is not surprised that Genoese, like all the others mentioned so far, is dispatched quickly, and in an unusually terse and derisive verdict of forty-nine words (in the original text), on aesthetic grounds:

If the people of Genoa lost through forgetfulness the letter z, they would either have to become mute or invent for themselves a new talk. For the z is the largest part of their speech, and this letter is indeed not pronounced without great roughness. (1.13.5)

One cannot help being astonished, however, by the disparaging and vituperative repudiation of the Tuscan dialect, which was, after all, Dante's own. The Tuscans, Dante charges, are arrogant and stupid enough to claim that theirs is an illustrious Volgare. Not only the uneducated people hold this foolish opinion but also famous authors (of whom five are named), whose verses, if one examines them attentively, will show themselves to be provincial, composed in local, municipal dialects unusable in larger areas. To make his point, he cites examples from the speeches of Florence, Siena, Pisa, Lucca, Arezzo; as for the way they speak in Perugia, Orvieto, Viterbo, Civita Castellana, "I do not even want to talk about them". (1.13.3) Some few authors, he concedes, know what

¹¹ Migliorini 1961, 133.

an outstanding Volgare is like: three such authors are named -- two Florentines and one Pistoiese; one other, obviously Dante himself, remains disingenuously unnamed. But in general, "almost all Tuscans are benumbed by their foul speech (*turpiloquium*)..." (1.13.3) Is there a reason for this angry rejection of Tuscan?

In Dante's Tuscany, two political parties faced one another, often violently: the Ghibellines, who favored the imperial power, and the Guelphs, who sided with the pope. Dante originally belonged to the moderate faction, called Bianchi, of the latter. In 1289 he took part in the famous battle of Campaldino, in which the Guelphs vanquished the Ghibellines. But in 1301, the Bianchi, suspected of harboring imperial sympathies, were overthrown by the more radical Neri, and as a consequence Dante was exiled from Florence. (Apparently he transferred, later in life, his allegiance to the Ghibellines, possibly because Florence was ruled by the Neri, but mostly because, tired of and dissatisfied with the endless internal quarrels of factions, he had come to favor a strong imperial monarchy.) The last two decades of his life were spent in endless wandering, and he died in Ravenna. (Perhaps his journeying all over Italy allowed him to acquire a first-hand acquaintance with the many dialects he cites.) Thus one cannot help suspecting that his ill treatment by Florence had something to do with the resentment that motivated the repudiation of Tuscan dialects in general and of Florentine in particular, even though that was the idiom in which he did write. (It also would allow one to date the composition of *De vulgari eloquentia* after his banishment.)

Some further dialects of Italy remain to be commented on, mainly on the left (eastern) side. At this point Dante advances the altogether odd thesis that there exist two types of Volgare in Italy,

... one of which appears to a degree feminine owing to the softness of the words and the pronunciation, which makes it happen that a man, though he have a virile voice, must be believed to be a woman. (1.14.2)

This feminine way of talking is typical, Dante thinks, of the Romagna, especially at Forlì. The other, masculine type,

... is so bristly and shaggy in words and in accent that because of its rude roughness not only does it cause a woman to step beyond the boundaries [of femininity] but also that you, reader, would wonder whether it was not a man [talking]. (1.14.4)

In the masculine way people of Brescia, Verona, Vincenza, Padua, Treviso, and Venice talk. None of those dialect can be the Volgare that Dante is seeking.

The handsomest speech is probably found in Bologna, Dante says, whose citizens took the feminine kind of speech from some neighboring cities, but also the masculine from others.

It [therefore] appears reasonable that their language on account of this mixture ... is tempered to a praiseworthy suavity. I believe this to be so according to my judgment,

beyond any doubt. ... But it is not what I call a courtly and illustrious (*aulicum et illustre*) Volgare. (1.15.5-6)

There remain but a few cities and regions to be examined. Trento, Turin, and Alexandria are so near the frontiers of Italy "that they cannot have pure speeches ... and what I hunt for cannot be found in them." (1.15.8).

Yet, such a most excellent language does exist.

I assert that there is in Italy a *vulgare illustre, cardinale, aulicum et curiale*, the one that is in every city of Italy but does not appear to belong to a single one (*omnis latie civitatis est et nullius esse videtur*), the one Volgare by which all municipal Volgari of the Italians are measured and weighed and compared. (1.16.6)

That ideal tongue is *illustre* because it illuminates, just as illustrious men illuminate and enlighten others by teaching them what is good and proper (1.17.1); it is *cardinale* because it is like the hinge (Lat. *cardo*) around which the door turns, opens and closes, whence it follows that all Volgari are thus hinged to, revolve around, the *cardinale* (1.18.1); it is *aulicum* because it belongs to the royal court (Lat. *aula*) -- or at least it would if Italy had a royal court (1.18.1); it is *curiale* because it is the speech of the assembly, the parliament (Lat. *curia*, from *coviria* 'gathering of men') -- even if Italy does not have one. (1.18.4-5)

This Volgare ... is, I affirm, what one calls *vulgare latium* ['Volgare of Italy'. Dante uses the adjective *latium* 'Latian' in the sense of 'Italian'.] For as it is possible to find a specific Volgare that belongs to Cremona, so it is possible to find one of Lombardy [in which Cremona is located]; and as it is possible to find one that belongs to Lombardy, so it is possible to find one that is of the left [eastern] side of Italy; and just as all these [Volgari] can be found, so can that of all of Italy. (1.19.1)

Dante's progression from Cremona to Lombardy to half-of-Italy to all-of Italy sets in effect up a hierarchy of diasystems, each of which can be subdivided into local dialects, depending, as I noted before, on criteria-and-definition.

It will be recalled that Dante conceded the excellence of the language of some Tuscan authors, himself included, and its aptness to be the *vulgare illustre*, indeed, by implication, the *vulgare latium* for all Italians -- provided it be cleansed of all municipal and regional features, and, of course, of outright solecisms. But this design for, this manner of constructing a national standard language through purification and de-dialectalization is impossible of realization. (It was, in any event, meant as a literary idiom rather than for ordinary daily intercourse, where speeches Dante calls *inferiora vulgaria* --1.19.3 -- that is, non-standard dialects, are likely to prevail.) Why this is so I have attempted to explain in an earlier publication, as follows.

The theory of peeling off, as it were, dialectal vagaries like the petals of an artichoke until there remains the small

but delicious heart, may possibly look intriguing at first sight. But if viewed realistically, flaws appear to the critical eye of the linguist.

First of all, as the heart of the artichoke is not a whole artichoke, so a de-dialectalized language, incorporating only the common denominator of all related dialects of a nation, would be a poor thing indeed, surely not one that Dante himself would have employed. And he did not....

Second, in the history of a great number of languages [i.e., diasystems, often congruent with a political realm] out of whose dialects a literary standard was to emerge, the process never occurred as Dante envisioned it. Rather, it came about in such a way that one of the existing dialects, for cultural, geographical, political, or intellectual reasons, attained prestige and supremacy over the others to such a degree that it became the model, the standard sought after for all linguistic expression, be it literary or learned, prosaic or poetic.

Third, and most importantly, the language Dante himself used in the *Divina Commedia* (though not in all other writings) was not at all his sought after *vulgare illustre*, but his own native dialect, though stripped of some local peculiarities.¹²

What really happened in the end was that Dante's Tuscan (Florentine) became the *vulgare latium*, the Italian standard. It has remained, despite the inevitable changes wrought by centuries of use, the speech taught to, and learned by, not only foreigners but also natives of Italy raised in a social or local non-standard dialect. Beside Dante also Petrarca in poetry and Boccaccio (1313-1375) in prose lent to Florentine the luster that elevated it to be the prestigious model for inter-dialectal and supra-dialectal communication. One wonders what "Italian" would be today if these *Tre Corone* 'Three Crowns' of Italian letters had been Romans or Neapolitans or (as seemed to be augured in the days of Frederick II) Sicilians.

But since no Italian nation existed until the late 19th century, and no single outstanding national center (like Paris for France), and since illiteracy remained high (estimated to have afflicted 78% of the total population as late as 1861),¹³ mastery of the Italian standard speech continued for much longer than elsewhere in Europe to be the prerogative of the learned, the literati, and the affluent. This accounts

¹² Pulgram 1958, 54-55. See also the entire chapter, "The Italian standard language", 54-67, especially as regards the post-Dantean *Questione della Lingua*, the continued controversy, enduring to this day, on what "Italian", Dante's *vulgare latium*, should be like, why it should or should not be Tuscan, with numerous positions defended voluminously and passionately, if not always logically or rationally. In fact, the endless theoretical dispute scarcely influenced the course of Italian linguistic history. For the sixteenth century in particular see Miglioni 1961, 339-360.

¹³ See De Mauro 1970, 36.

also for the persistence, already referred to, of the strongly diverse local dialects.

It is clear that Dante, once he had freed himself from the shackles of biblical myths (in his day, a difficult and even dangerous act of disenchantment), exhibits remarkable insights into the nature and purpose of language. His interest in, and desire for, the establishment of a common Italian idiom, however, leads him to confuse linguistic substance and literary style or preference. And this caused him, while theoretically striving toward the will-o'-the-wispish *vulgare illustre* (*cardinale, aulicum, curiale*), to advocate the creation of the model standard grammar for Italian, that is, in fact, the kind of *grammatica* he had deprecated as artful and artificial with reference to Latin. The rise of such a *grammatica* occurs regularly and normally in all societies, certainly the literate ones, and sometimes, as in ancient Egypt, in several reprises.¹⁴ I mentioned this earlier as being the first of two ironies in Dante's endeavors. The second irony is that it was he himself who delivered the model by becoming one of the principal agents, probably the most prominent among them, in the enthronement of Tuscan, the dialect he had disparaged as *turpiloquium*, to be the national idiom of Italy, albeit in its most elegant and least plebeian style. Indeed, the result of his hunt was, ultimately, not a distinct dialect, but rather a style of Tuscan worthy of being described as *illustre, cardinale, aulicum, and curiale*.

Having recounted the weaknesses (perceived as such thanks to the hindsight of seven centuries) in Dante's view of language, and having accounted for them as being fruits of his time and circumstances, one is still left to admire respectfully his great good sense and high acumen.

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**TWICE TOLD TALES:
ASPECTS OF THE STORAGE AND EXPRESSION
OF PERSONAL EXPERIENCE**

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Introduction. It is common occurrence for a speaker to verbalize the memory of a single personal experience on more than one occasion, each telling both resembling and diverging from its counterparts in various ways. Such "twice told" tales offer an intriguing stereoscopic glimpse into the cognitive processing that lies behind them.

This study considers two instances of such twice told experiences. The accounts are taken from a set of personal interviews involving an elderly woman, Lucinda, and her grown son LeRoy, and they involve her childhood memories of life on the Oklahoma and Texas frontiers before the turn of the century. My purpose is to examine these accounts and draw from them a number of general conclusions about the cognitive storage and expression of personal experience.¹

This study contributes to an umbrella enterprise which holds that analysis of conversational data provides a promising yet often neglected entrée into questions of cognitive processing (Meyer 1991). The approach owes much to Lamb's views on the network organization of cognitive and linguistic systems (e.g. Lamb 1971) and also to the established tradition of conversation analysis (e.g. Atkinson and Heritage 1984). The more particular interest in repeated stories goes back to Bartlett's pioneering efforts (1932) and more recently to Chafe (1977, 1980), neither of whom, however, compares repeated oral renderings of a single personal experience by a single individual in the manner done here². It also reflects a growing interest within cognitive psychology in "real world" as opposed to laboratory approaches to cognitive issues (e.g. Cohen 1989).

A frontier salvation experience. At some point before her marriage in 1896 at age fourteen, Lucinda had a spiritual experience of special import. In 1952 she related this experience to LeRoy. A decade later still she verbalized the experience again. The two versions are as follows³:

Lucinda's salvation experience, 1952 version.

Do you remember the- tíme that you were ² sáved ³ ?	7 8
³ Oooohh- ² yes ³ . ((2))	.1
Where ³ wás it ² ?	7 9
² Well ² - ((4))	.1
¹ ³ don't ¹ know it ³ séem ¹ likes kinda pe ³ cúliar ² - ((3))	.2
that it ³ háppened ¹ that a ¹ wáy ² -	.3
but uh-((5))	.4
whén they ³ búried ¹ mother ² they buried her up on our ³ pláce ¹ . ((1)).	5
We didn't háve no graveyard there ³ thén ² .	.6
That was down by- ² (Cóllums) ³ ?	8 0
² Yeah ³ . ((6))	.1
'n uh- I'd- I got ² dówn ² 'n-	.2
'n I- I just ³ práyed ¹ .	.3
I don't know- ((1)) how ⁴ cóme ² but ³ ányway ² - ((2))	.4
I was up there by my ³ sélf ¹ .	.5
'n as I was comin ² báck ² - ((3))	.6
from there- down there in the ³ pásture ¹ - ((5))	.7
What'd you ³ réel ¹ like?	8 1
² Well ³ - ¹ ³ don't ¹ know ² it just ³ séem ¹ like that- ((5))	.1
Thát's somethin' you can't hardly ³ téll ¹ ísn't it ³ ? ((Chuckle))	.2
((Chuckle)) I guess it ³ is ¹ .	8 2
((Chuckle))	.1
It's pretty ³ wónderful ¹ though ¹ ³ ídn't it ² ?	8 3
² Yeah ³ . ((3))	.1

Lucinda's salvation experience, 1960s version.

I remember you téllin' one time bout when you were sáved. ((2))	9 4
What uh- do you remémber about ³ thát ¹ ? ((1))	
Oh ¹ just felt like uh-	.1
I needed sómethin' (comin')-	.2
and I went to- óut to where momma was búried 'n-	.3
kneeled down in práyer.	.4
I thóught (there) where her héad was-	.5

but 'I don't know whether- it was her héad or her 3réet ¹ . ((1))	.6
'N I- ((8))	.7
Go ahead. ((2))	9 5
'N as I come back to the house-	.1
séem like I can see them fenceposts now.	.2
Everthing looked so good to me. ((2))	.3
But I didn't know the Bible or (quote it). ((9))	.4

Comparison of these two tellings reveals, among others, the following similarities. First, both tellings are directly elicited by LeRoy's preceding question. Second, neither version comes across as especially fluent, and the tellings are similar in terms of number and kind of disfluencies that characterize them. Especially striking is the way that in both tellings, Lucinda leaves an utterance hanging unfinished for several seconds at the climax of the account until LeRoy prompts her to continue (1952:81; 1960s:95).

There are many differences as well. Obviously, the two versions are not word for word twins. Instead, similar ideas are expressed in different wordings. Also, although both versions report the same basic facts, there are differences in the exact details selected for inclusion.

Besides these kinds of localized differences, the two accounts also show marked differences in overall organization. In the 1952 version, Lucinda begins with an evaluative statement (79.2-3) that serves as an advance apology for the difficulty she has in verbalizing the memory. Then in 79.5-80.3 and 80.5-7 she expresses factual information connected with the experience and she shows a change of viewpoint from third person, telling what "they" did, to first person, telling what she did. Throughout this delivery, Lucinda makes explicit her trouble in expressing the emotional significance behind the bare facts (e.g. the three "I don't know"s of 79.2, 80.4, and 81.1), and she finally gives up by 81.2.

The 1960s version, in contrast, has a much tighter organization, one betraying less struggle on Lucinda's part to verbalize the experience to her satisfaction. Here, Lucinda begins by posing a problem in 94.1-2 ("Oh I just felt like uh I needed somethin' (comin')-"). Within this "problem to be solved" framework, the juxtaposition of the factual information that follows (94.3-95.1) falls neatly into place as a sequence of steps leading to a solution. Then, at the same point where in 1952 she had given up expressing the emotional significance, Lucinda in this version succeeds both by

reporting her current visual state (95.2), and by giving a more direct assessment of her change in outlook once the initial problem is resolved (95.3). In contrast with the 1952 version, her viewpoint throughout the 1960s version is first person.

The storage and expression of the information.

Consideration of the two tellings and of the memory they seek to express suggests a number of conclusions. It can be noted first that Lucinda's memory of the salvation episode is not a second-hand, linguistic, "hearsay" memory but a distinctly first-hand, non-linguistic, perceptual memory of a sensory experience. Even though she here attempts to verbalize the experience, the information itself resides primarily within perceptual and affective portions of her cognitive system that are connected to, yet outside the area of the linguistic system proper. This interpretation is in keeping with surface patterns noted in the two tellings. Differences in the overall organization as well as in more local choices of expression (e.g. "got down" in 1952:80.2 vs. "kneeled down" in 1960s:94.4) reflect the non-linguistic nature of the storage which does not determine in advance a particular linguistic expression and which results in differences in separate tellings.

A second point follows from the first. If memory of experience involves non-linguistic storage, then in order to inform another person about one's experience, a translation of perceptual memory into linguistic information is necessary. The large number of disfluencies and the inability in some cases to put some aspect of a memory into words at all reflect Lucinda's struggle to find adequate linguistic expression for information which is stored not in linguistic/propositional form but as perceptual memory of sensory stimuli.

Once we accept that translation is needed, a question that immediately comes up concerns the timing of that translation. The answer suggested by the salvation tellings is that this translation is begun at the time of the experience but is not completed until the time of the telling. The translation of personal experience into linguistic expression is not an all or none operation but seems to occur in stages. Lucinda may attach a linguistic label, "salvation", to her experience at the time of its original occurrence, long before she has chosen any more specific propositions with which to talk about the details of the experience. This label serves as an index leading to the activation of the portion of memory concerned with that unique experience, and it is with this label (1952:78, 1960s:94) that LeRoy has her

retrieve the memory. Clearly, however, the complete translation of the experience is not effected immediately upon its perception. Instead, the memory is stored in the sensory/perceptual modalities, and it is the act of telling that forces the translation attempt. In this case, the original experience takes place in the 1890s, but its conversion into linguistic expression is not complete even by 1952.

Another important point concerning the translation of information involves the ease with which it takes place. **Some types of information are easier than others to express linguistically.** In the two tellings of the salvation experience, Lucinda has relatively little trouble in expressing the participants and sequential events attendant upon the experience. She went to her mother's grave, knelt, and prayed, and came back to the house. Such situations are not difficult to express in language and they often have a number of rather obvious conventional encodings. That is, Lucinda has in her linguistic system obvious solutions to the problems of what to call a posture in which the knees are on the ground, how to refer to participants, how to signal that one event follows another, etc. Language, with its temporal sequential quality and its discrete recurring words and phrases is well suited for expressing such states of affairs.

The essential emotional impact of the experience, however, does not consist of these externally observable events, and in both tellings, it is near the end of Lucinda's account of this event sequence and at the point that the ineffable feeling needs to be expressed that she experiences the most difficulty. In the 1952 version, Lucinda fails outright in characterizing her emotion (81.1-2). In the 1960s version she achieves a more precise characterization indirectly through visual report and assessment (95.2-95.3), but this is not a description of her emotional experience in the direct sense that "I went out to where momma was buried" is a description of a physical event.

Moving on, it can be noted that while certain information is expressed in both tellings of the experience, Lucinda does not express exactly the same information in each telling. We can thus conclude that **experience is remembered in chunks consisting of an essential core of smaller bits of information, and that more information is stored in connection with an experience than is ever expressed in a single telling.**

In Lucinda's memory, the experience that is activated by the phrase "the time when you were saved" consists of the collection of the memories that she went to her mother's grave, knelt, prayed, and returned, and

that on that return trip, some emotional change took place. These are the essential points that make up the experience, and they are thus included in each telling. In network memory, however, this core collection is not isolated from the rest of memory, but rather has many connections to it and can be understood and accessed only in relation to this larger matrix. The notion of "mother's grave", for example, has connected with it in Lucinda's cognitive system the information that the grave was located on the farm for lack of a proper graveyard. From the standpoint of the experience chunk indexed by "the time that you were saved", this locational detail is background information that need not be expressed in every telling. Such information is, however, accessible for telling as the cognitive and social conditions of a particular telling demand⁴.

Among other things, Lucinda's selection of details such as this for expression is sensitive to her notion of what the listener knows, is thinking about, and wants to find out. That is, **the expression of experience is sensitive to the listener's cognitive state.** In the case of the salvation experience, LeRoy elicits both tellings by means of questions. His eliciting utterances differ from each other and this difference tells Lucinda something about his cognitive state. In the 1952 interview (1952:78), his cue question, "Do you remember the time that you were saved?", implies that he does not know much about the occasion although it does presuppose that Lucinda did in fact have such an experience. In contrast, in the 1960s interview (1960s:94), LeRoy's cue question, "I remember you tellin' one time bout when you were saved. What do you remember about that?", makes clear to Lucinda that he already knows a great deal about her experience. In addition, LeRoy's questions in 1952 indicate that he has a special interest in the location of the experience (1952:79, 80) while his question in the 1960s interview (1960s:94b) indicates a more general interest. Lucinda, therefore, begins her accounts with different notions of what LeRoy knows and wants to know, and these notions influence the way she talks about the experience.

For example, it is in the 1952 telling in which LeRoy shows an interest in the location of the salvation experience and professes little prior knowledge about the event that Lucinda includes the most background information about both the spatial and temporal setting of the experience. She identifies the location of the grave (1952:79.5) and explains why that location was chosen (1952:79.6). This introduction serves both to satisfy LeRoy's expressed curiosity about the location of the experience and also to provide for him a setting against which to interpret the main events, and it is

only after this introduction that Lucinda begins to tell about her part in the events. In contrast, in the 1960s version, in which LeRoy claims to know something about the experience already and does not show special interest in the location, Lucinda skips this careful assertion of introductory background material. Instead she mentions the grave and its location only after she begins her account of the main event sequence, and she mentions it only briefly in a nominalized clause as a circumstance that she believes LeRoy is already familiar with (1960s:94.3; "and I went out to **where momma was buried**"). Since LeRoy claims to know the story already, the setting need not be introduced as carefully.

As a final point, we can note that in the tellings, Lucinda's cognitive tasks involve both finding expression for information and being sensitive to LeRoy's cognitive needs. In the first, least fluent version of the salvation experience, these demands are unusually heavy. The information is not of a type that is easy to translate, and because LeRoy does not profess any details of the experience already, Lucinda must be especially careful to present the information so that he can comprehend her. The need to attend to both tasks at once contributes to her disfluent performance. That is, in such situations the task of expressing experience can overload the speaker's processing capacities.

A friendly Indian comes to visit. Lucinda had many encounters with Indians in the Oklahoma territory. She tells about one Indian memory in both interviews as follows.

A friendly Indian, 1952 version.

Did you ever go down to their- ((2)) 3C6lony3

3 0

1where they 3lived 'n everthing3?

[

No. ((3))

--> There was 36ne ole- ((1)) 21Indian2-

.2

his n6me was 3L6ng H6ir2. ((1))

.3

'N 3h6 1visited us 3quite 26ften1 after 3d6d 1got sick1. ((1))

.4

He 2c6me one 2n1ght 'n 1was 2s1ttn 2there

.5

1'n d6d was 36wful 1sick 'n-

.6

((5)) 'n h6-

.7

h6 could s6y en6ugh that we'd understand a 4l1ttle1.

.8

- He'd say hé's ⁴áwful ¹sick¹. ((2)) .9
- We could under³stand ¹that¹. ((3)) .10
- 'N hé'd come ín 'n-
- ³That's ¹after we- uh built a ³dúgout² 'n moved up there where-
- ³Alice's¹ ²pláce¹ you know- ¹where it blowed ³away³?
The-
- Uhm. 3 1
- ³hóuse blowed³? ((5))

A friendly Indian, 1960s version.

- What did their hair look like? 8 0
- Oh the ³mén's ¹hair was ³púrty¹.
- But the ³wómen¹ didn't do nothin ³to¹ their hair but-
just let it hang ²dówn¹. ((2))
- But the mén 'd keep theirs ³cómbed¹ 'n plaited ³up¹. 'N looked púrty.
- > Wé had an old Indian come see dád (at)- he'uz síck. .5
- His náme was Lóng Hair. ((1)) .6
- 'N hé'd- ((2)) have hís hair plaited .7
- 'n it'd hang way down to his wáist. .8
- ((2)) One night he come- dad was pretty ³síck¹. ((2)) .9
- 'N he'd say- .10
- ⁴Hé ¹could talk a little English. .11
- Hé'd say he's áwful sick. .12
- He's áwful sick. ((Chuckles)) ((14)) .13
- We got to where wé thought- quite a bít of ole Lóng Hair. .14
- ((Cough)) ((8)) Cause he'd come to see dad. ((1)) .15
- There wasn't many white people líved up there. ((Cough)) ((19))
- Théy'd come visit ús.

Comparison of the two tellings reveals these facts. First, neither Long Hair account is explicitly elicited by LeRoy. Instead Lucinda volunteers the anecdote in each case. Second, the two tellings of the incident are similar in the degree of fluency with which they are told. Although there are a few long pauses and false starts, both come across as relatively fluent, especially in comparison with the salvation experience

verbalizations. Another similarity in the two versions involves aspects of overall organization. Both accounts begin by identifying Long Hair by name and by his habit of visiting the family after Lucinda's father became sick (1952:30.2-30.4, 1960s:80.5-80.6). In both cases, it is Long Hair and not Lucinda's father or Lucinda herself who is treated as the central character in the story. After the initial introduction of Long Hair, both versions then continue with a short event sequence in which Long Hair comes visiting one night and says "He's awful sick". After the delivery of this climactic event, both add an evaluative comment which involves a shift in point of view from Long Hair to Lucinda and her family (1952:30.10, 1960s:80.14-15), and then segue to other related topics.

With regard to more local structuring, there are both similarities and differences. The two Long Hair tellings are not word for word twins, but there are nevertheless striking similarities in the way the experience is presented. Many wordings are quite similar in the two tellings while other information is framed in quite different ways (e.g. the "he could say enough that we'd understand a little" of 1952 and the "he could talk a little English" of 1960s). While much information is expressed in each of the two tellings, certain details are included in only one telling, such as the detail in the 1960s version about how Long Hair's hair looked.

One point of local structuring merits special mention. In the 1952 version Lucinda utters a false start (30.7, "'n he-") immediately before commenting on Long Hair's language abilities (30.8). In the 1960s version she utters a similar false start (80.10, "'n he'd say") also immediately before commenting on Long Hair's language ability (80.11). In both cases, the false start seems to be the beginning of the expression of the climactic event, "he'd say 'he's awful sick'", that is interrupted so that Lucinda can explain Long Hair's English ability to LeRoy, who needs that information if he is to appreciate Long Hair's utterance. The striking similarity of these false starts and their sequence in the discourse suggests a similarity in Lucinda's processing in each case, her attention divided between finding expression for the events of the experience and tracking LeRoy's cognitive needs.

Comparison of the two experiences and their verbalizations. A detailed consideration of the storage and expression of the Long Hair memory would support the conclusions presented above. For lack of space, however, we forego such discussion and focus instead on a brief comparison of the Long Hair experience and

verbalizations vis-a-vis the salvation experience and verbalizations.

A cluster of characteristics distinguishes the salvation tellings from the Long Hair tellings. First, in contrast to the disfluent salvation experience verbalizations, Lucinda's tellings of the Long Hair experience are relatively fluent. Second, whereas the two tellings of the salvation experience differ markedly in their overall organization, the two tellings of the Long Hair experience are much more similar to each other. Third, both tellings of the salvation experience were elicited by LeRoy while both tellings of the Long Hair incident were volunteered by Lucinda. In addition, LeRoy (p.c.) recalls that in everyday conversation Lucinda told the Long Hair story on numerous occasions while she rarely talked about her salvation experience. From these observations we can infer that **often verbalized experiences come to have a degree of linguistic storage in addition to non-linguistic perceptual storage.** It is Lucinda's struggle at speech time to translate her rarely talked about salvation experience into words that results in her disfluent deliveries. In the case of the oft told Long Hair incident, however, Lucinda at speech time has already made and stored many decisions about the way that the incident can be verbalized. Therefore, Lucinda needs only to retrieve aspects of the organization she has previously chosen and does not need to create an organization anew on each telling. The result is two-fold: first, a fluent delivery reflecting little struggle on her part to find the right words and phrases, and second, alternative tellings of striking similarity.

Summary. The points made above are for convenience summarized here as eight proposed principles of the storage and expression of experience.

Principle 1: Non-linguistic storage. Lucinda experiences the world through her senses and stores memories of her experiences in sensory/perceptual portions of her cognitive system.

Principle 2: Chunked and connected storage. The memories are organized in cognitive units or chunks (e.g. the "salvation experience" unit) that have many connections to other information.

Principle 3: Translation necessity. In order for Lucinda to share information about her experiences with LeRoy, she must translate her perceptual memories into linguistic information for expression in the one-dimensional speech signal.

Principle 4: Translation timing. Initial stages of this translation may be begun at the time of the experience, but the translation is not completed at that

time. Instead, it is the actual need to tell about the experience at a later time that forces the translation to be fully worked out.

Principle 5: Translation ease. Information varies in the ease with which it can be verbalized. For example, some types of perceptual information are quite difficult to express linguistically because they lack obvious and conventional linguistic expressions.

Principle 6: Listener sensitivity. Lucinda is mindful of LeRoy's cognitive state as she speaks. She structures the telling to provide him with needed information both at the time and in the quantity that he requires for successful interpretation.

Principle 7: Overload. Lucinda's tasks of completing a linguistic translation and keeping track of LeRoy's cognitive needs tax her processing capacities. In extreme cases where an experience which is difficult to translate is also expressed linguistically for the first time, to a listener who knows little about the experience, the complexity of the processing results in a highly disfluent verbalization.

Principle 8: Numerous tellings. After an experience has been verbalized a number of times, however, the tellings, which are themselves remembered, result in a degree of linguistic storage. This linguistic storage exists in addition to the original perceptual storage and primes linguistic choices in further tellings. It involves high level choices of overall organization as well as more specific choices of wordings and the like. After numerous tellings, as in the case of the Long Hair experience, Lucinda's task of initial linguistic translation moves towards a resolution, and more of her processing capacity is thereby freed for the task of orienting to the listener's system. Further expressions of the experience thus show evidence of being more tailored to the interpreter and less reflective, in terms of disfluencies, of the task of perceptual to linguistic translation.

Notes

¹I would like to thank LeRoy Ford for making his recordings available for study. This study is reported in more detail in Meyer 1991, pp.223-293. Full transcripts of the interviews are given in the appendix to Meyer 1991.

²Bartlett worked with written texts. Chafe (1980) collected repeated oral stories, but none of the "Pear Stories" studies make explicit the kinds of comparisons done here.

³LeRoy's utterances are aligned on the left margin. Lucinda's are indented. A numeral in double parentheses indicates a pause of that number of seconds.

⁴Full exploration of these conditions is beyond the scope of this paper. See Meyer 1991 for discussion of the influence of topical activations on the inclusion of certain details.

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EARLY TRACES OF LITERATE BEHAVIOR: GRAPHICAL KNOWLEDGE DEMONSTRATED BY THREE-YEAR-OLDS IN THE UNITED STATES AND CHINA

Nancy Pine
The Claremont Graduate School

Introduction

Children learn implicitly from their environments, without being intentionally taught. First-grade children playing school seat other children on the rug in front of them and instruct in a teacherly manner, demonstrating in the process that they have learned a great deal implicitly about how one "does school." A four-year-old who has been severely reprimanded spans a doll with equal severity, and in the process provides a glimpse of cultural knowledge that has been absorbed implicitly. The two-year-old boy who imitates his father by sitting in a living room chair, feet propped up and newspaper held up in front of him has soaked up a considerable amount about his environment and the people who live around him. This natural capacity of children to learn without being explicitly taught permeates all areas of their lives.

The current study focuses on one element of children's implicit learning related to literacy knowledge. It examines the earliest writing attempts of two- and three-year-old children in two cultures with dramatically different writing systems -- the United States and China. The pencil tracks, analyzed for the visual characteristics of each culture's writing, suggest that children absorb specific features of their society's graphical system several years before they learn to read and write in a conventional sense.

Current Studies and Theories

Lamb describes one unifying principle of meaning-making as networks of relationships (Regan *et al.* 1982). These networks connect an individual's language, ideas, and signs to the surrounding, pervasive culture. Applying this notion to the worlds of children as young as two or three years, it might be assumed that sign systems look like multi-dimensional maps infused with complex networks that enmesh the children in their surrounding culture.

Halliday describes "learning to mean" as a continuously interactive and intensely social process for children. "At no stage is language development an individual matter," he writes. "Meaning, and learning to mean, are social processes. From the moment of birth a child is one among others, a person among people (1979, p. 181)." As members of their cultures, young children absorb and put to work a myriad of cultural patterns. Some of these implicitly learned behaviors are readily observed, as with the child imitating his father reading the newspaper; others are found through detailed

observations and uncovered in minute actions. Halliday describes his son, Nigel, creating and putting to use five symbolic acts of meaning by nine months of age -- some vocal, some expressed in actions. Although some observers might have overlooked Nigel's small sounds and acts, in reality they comprise a "protolanguage" which functions in ways that suggest the beginnings of adult language.

By combining the theories of Lamb and Halliday with studies that analyze the graphic symbols of preliterate children (Clay 1975; Goodnow 1977; Kellogg 1969), it is possible to conjecture that just as preverbal children develop a "protolanguage," preliterate children develop somewhat parallel networks of "protowriting." These early beginnings reflect the environmental print that children see used in their everyday lives; the graphical marks hint at, but do not reproduce exactly, the conventional symbols of the cultures' writing systems. Clay (1975), in an analysis of prewriting by four- and five-year-old children who are not fully literate, describes their earliest attempts at writing as detailed approximations which often follow underlying organizational and functional principles. As children gain skill and develop a repertoire of signs for generating print, Clay hypothesizes that they acquire a mental plan of some of their culture's conventional symbols, such as the first letters in their name. The current study, which involves much younger children than those she studied, proposes that the holding of a mental plan may extend downward in age, and that as young as two and three years children may have a mental plan of the general shape of their culture's graphical signs.

Analyses of young children's drawings (Goodnow 1977; Kellogg 1969) show children developing controlled, graphical signs as early as two or three years. Their seemingly simple representations, often judged "meaningless" by adults, denote distinct perceptual viewpoints, and include generic elements which the children are able to reuse in new ways.

Arnheim theorizes that the units children use in their drawing are based on the "structure" of the original; they are the aspects that are the essence of its form and that underlie a person's recognition of it (Goodnow 1977). For example, the vertical axis of the human figure is what provides its basic visual structure, and it is this verticality that children depict in their representations. The horizontal aspects are less essential and may easily be neglected. Arnheim also suggests that a person's graphical endeavors are controlled by the sets of concepts one has available, by the visual vocabulary of units and arrangements in one's environment. Learned networks of relationships and the influence of social processes, therefore, shape graphical production at many points.

The observations gained during this current study seem to reflect this environmental influence; the prewriting of Chinese children appears to include criterial attributes quite distinct from the prewriting of children in the United States. The essence of form for children of one culture appears to be quite different from the essence of form for children of the other.

History of the Study

Building on Regan's work in China on the visual semiotic (Regan & Tan 1989), and encouraged by a pilot study of prewriting production in Nanjing during 1990 and by earlier work with preschool children in the United States, this study was conceived as a way to probe the effects of two dramatically different writing systems on very young children. Do children, when exposed to these systems during their everyday lives, soak up elements characteristic of their particular graphical environments?

The data was collected in three geographically dispersed cities in the People's Republic of China and three in the United States. (See data illustrations at the end of the article.) In each location, with the cooperation of local research assistants and preschool teachers, this researcher asked two- and three-year-old children individually to write something like their parents might write. The children were provided with a standardized size and type of paper and writing instruments, and the researcher was able to observe and make notes on each child's procedures, interest level, and other details during a period that was kept to about two minutes per child. Between 25 and 30 children participated in each city, approximately half two-year-olds and half three-year-olds. The birthdate of each child was recorded, as well as information about the data-gathering situation.

Since 1987 Regan and his associates in China and the United States have investigated the visual abilities that develop when individuals learn to read and write in the environment of the Chinese writing system (Regan, in press). For the current study, lengthy discussions have been held with Chinese associates Xu Jian-Yuan and Gao Hong Mao to identify visual characteristics of both English and Chinese. In addition, several groups of Chinese and American associates have carried out blind sorts of 50 samples of prewriting, identifying each as made by either a Chinese or an American child. From these sources of independent observations a list of approximately 30 attributes has been developed for analysis. A descriptive vocabulary has begun to develop and continues to evolve. After several trial runs the attributes were consolidated into an analytical matrix which is summarized below (see "Attributes of Configurations").

From the blind sorting carried out by 20 adult writers of English and Chinese, the samples which were selected as definitely from one country or the other over 95 percent of the time became models for selecting samples for the current study. Thirty such samples were chosen, 15 from the United States and 15 from China. Analysis was carried out by the researcher and checked by other raters.

Analytical Categories

Configurations. A configuration is defined as a mark made from the point where a child put the pencil down until the point where it was consciously picked up. This was determined both by direct observation of the children writing and by later analysis of the product under a powerful magnifying light. Each disconnected line or group of lines is considered one configuration, and a serious effort has been made by the raters to eliminate guessing at a child's intentionality.

Size. Using a magnifying light, the researcher measured each configuration on each child's paper at the point of its largest dimension. A second rater then repeated the procedure without reference to the first, using the same equipment. There was a high degree of agreement. Most of the discrepancies were discovered to be errors in recording, with a few related to the difficulties of defining a particular configuration. The differences between raters were reconciled by discussion and joint decision-making.

Use of Space. The amount of the total paper each child used was measured in gradations. Each paper was scored as using one-quarter of the paper, one-half, three-quarters, or the entire page. Position on the page was not considered, only the amount of space utilized.

Writing Attributes. The attributes are listed in the table below and were developed from the descriptions gathered earlier. Although developed over a long period of study, the list continues to evolve, with more precise terms replacing old as new insights are gained.

Attributes of Configurations

Circle/Curves

1. curves
2. circle
3. closed, nearly closed
round shape

Rectangle/Square/Triangle

11. rectangularity
12. rectangle, square
13. closed, nearly closed
rectangle, square
14. triangle
15. closed, nearly closed triangle

Line Segments (< 2 cm)

31. straight, nearly straight
horizontal
32. straight, nearly straight
vertical
33. straight, nearly straight
diagonal
34. drooping
35. angles, hooks
36. dots
37. irregular
38. curved

- Continuous Line* ($\Rightarrow$ 2 cm)

 - 21. evenly spaced angles
 - 22. unevenly spaced angles
 - 23. curves, loops
 - 24. irregular
- Other*

 - 41. closed, connected parts
 - 42. compact, dense
 - 43. closed, irregular
- Adults Can Recognize*

 - 51. number
 - 52. Chinese character
 - 53. English alphabet letter
 - 54. recognizable picture

Observations from the Data

Chinese writing is, to the Western adult eye, small and complex, angular and somewhat square. English writing is, to the Chinese adult eye, large and simple, round and continuous. By analyzing the papers of two- and three-year-old children from China and the United States that represent the most obvious examples of their country's prewriting, children's critical attributes of their graphic systems begin to emerge. In the process the implicit cultural literacy learning that they have acquired becomes apparent. The size of each configuration, the number of configurations per paper, and each child's total use of space are three categories which illustrate this.

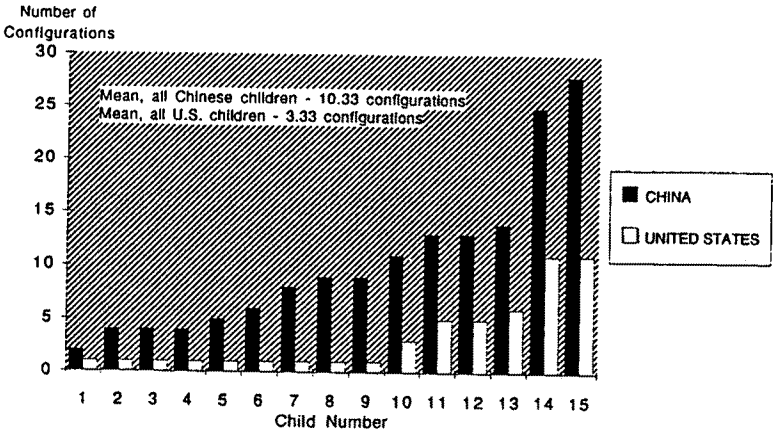


Figure 1. Mean Number of Configurations per Child.

The mean number of configurations per paper for the 15 Chinese children is 10.33; for the children of the United States it is 3.33. The graph above (Figure 1) depicts the differences, with the children paired in ascending

order. One Chinese child made two configurations, the fewest in the Chinese sample, whereas nine United States children made only one configuration, the fewest for that sample. At the higher end, two Chinese children made 25 and 28 configurations respectively, while the American high, made by two American children, is eleven.

The size of each configuration on each of the 30 papers was measured in centimeters. Figure 2 illustrates the clear difference between the young children in the two cultures. Whereas the 15 children from the United States wrote configurations with a mean size of 7.5 centimeters often using sweeping and continuous lines, the 15 Chinese youngsters wrote configurations with a mean size of 0.79 centimeters. Both the range within each sample and the total numbers are worth noting. The spread of means among the children in the United States ranges from 2.26 centimeters to 24.5 centimeters, whereas the spread among the 15 Chinese children is only from 0.62 centimeters to 1.92 centimeters. The mean size of each child's configurations from the various parts of the United States is many times greater than the means of any Chinese children. This again points to the cultural and environmental influences which have resulted in distinct, implicit learning about a graphical sign system long before children become literate in a conventional way.

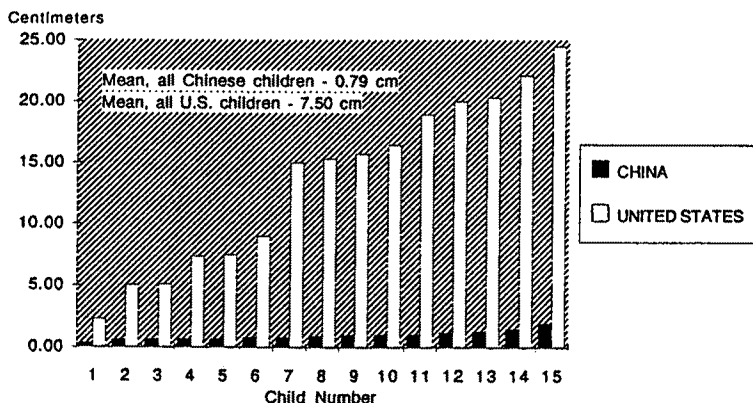


Figure 2. Mean Size of Configurations, by Child.

The third category, use of space, reinforces the tendencies observed above. As the graph shows (Figure 3), all except two of the Chinese children used one-quarter or less of their paper. Of the United States children, none kept their graphical marks within that limited space. Instead, four filled the paper completely, while the majority filled approximately three-quarters of the paper. It is worth mentioning, also, that of the Chinese papers, several used closer to one-eighth of the paper than one-quarter.

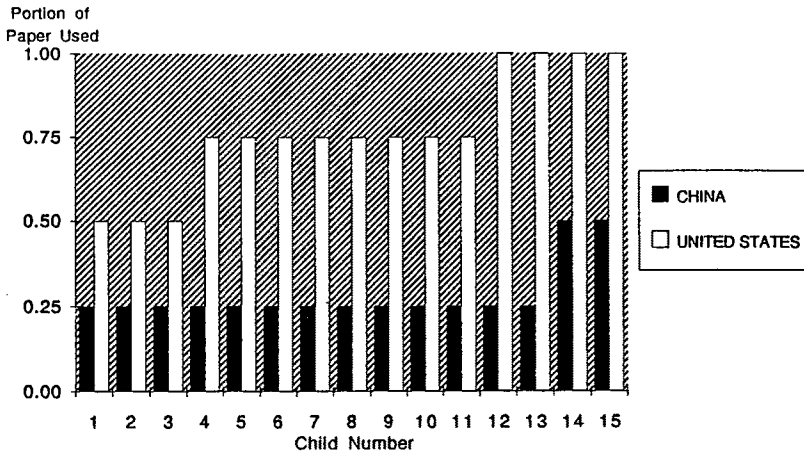


Figure 3. Use of Space, by Child. Position on paper not considered, only the amount of space utilized.

The final category, the attributes included in each writing system, presents a more complex puzzle for a short paper to discuss, but some general impressions are worth noting. Each configuration was coded for each attribute, and could include many attributes. In other words, most of the attributes were not mutually exclusive. One part of a given configuration might contain a square, while another part might be curved. These characteristics are much more subtle than measurements in centimeters, and they hint at the more subtle, but important attributes of form that the children learn implicitly. Roundness and squareness, angularity and regularity of pattern, density and continuous lines appear to be part of the mental picture that the children have absorbed of their culture's graphical symbols. When all the configuration attributes are recorded in a grid, they cluster by country (see Figure 4). The numbers suggest that parts of the essence of form that Arnheim discusses are beginning to be identified. The attributes that are often found in the prewriting of one cultural group or the other must be related to the visual vocabulary of each culture. The Chinese children seem to create very small line segments, with very high numbers of angles, for example (A35). The children from the United States tend to make long continuous lines which include many irregular directional changes (A22, A23, A24).

Emerging here in these attributes, as well as with the more quantifiable measurements, are networks of signs that appear to have links to a child's particular graphical sign system. These two- and three-year-olds do not produce stable, conventional signs that can be read by adults nor are the signs that they do produce consistent. However, when these signs are drawn from two dramatically different graphical environments such as the United States and China, the links with particular cultural networks begin to emerge.

Figure 4. TOTALS FOR EACH ATTRIBUTE, BY CHILD

ID#	Number of Configurations	Totals per Attribute												Line Segments												Other			Conventional		
		Curved						Angular						Continuous Line						Line Segments						Other			Conventional		
		A1	A2	A3	A11	A12	A13	A14	A15	A21	A22	A23	A24	A25	A31	A32	A33	A34	A35	A36	A37	A38	A41	A42	A43	A51	A52	A53	A54		
14	11	4	1	2	1			1							1	9		7		4											
18	4																														
19	9	3	1	2	1										1	4	3	6	2	4			2								
21	14	7	2	1				3					1			2	2	8		3	4	2	2	5							
24	28	12	5					2							1	3	3	18		4	15			2							
33	6	3								1	1	1	2			1	1	3		2	3										
35	8	4														2		6	1	5	5										
38	2	1			1				1									2		2	2		2								
41	4	3													2	1	2	3		2	3		1								
47	4	2	1				1	1							1		2	4		1	3	3		3							
64	5	3														1	2	4		3	3										
66	13	11													1	1	12	10		2	11			1							
71	9	3					1	3								2	10	9		8	1		8								
74	13	5													2	3	12	2	10		3		4								
75	25	13					1	6							4	10	16	18	2	12	15		8	5							
105	1	1									1	1						1			1										
106	5	3	1							3	2	2			1	1		1			1										
111	1	1								1	1	1											1								
119	5	2	1							1	1	1					1														
121	1	1	1																												
126	1	1																													
134	3	1								1	1	1	1																		
135	1	1	1							1	1	1	1																		
138	1	1	1							1	1	1	1																		
139	11	2	1							1	2	1					1		1	8			1	1							
154	1	1	1							1	1	1							2												
155	6	6	1							5	3	3	2																		
164	11	10	1	1						4	7	3	5	2		1		1		1	2										
170	1	1	1																												
171	1	1	1							1	1	1												1							

CHINA

UNITED STATES

While describing Nigel's early symbol-making protolanguage, Halliday concludes that the important issue of trying to interpret the ontogenesis of language is to focus on our understanding of the nature of infancy. How do children begin to exchange meanings, and develop a semantic system that gradually approximates that of the adults around them? And how, while they are construing it, do they use it "to construe reality -- to make sense of their experience and organize it into a picture of the world that is likewise shared with the others (p. 181)"? To paraphrase this idea in relation to protowriting, the important issue continues to be understanding the nature of early childhood learning. What meaning do these preliterate youngsters derive from the graphical marks they encounter in their everyday worlds? And as they gradually absorb the critical attributes of their culture's writing system through implicit learning, how do they use this early knowledge to make meaning from the conventional, environmental print? Although the questions, that one could raise are many, it seems apparent that by the time children enter school at five or six years of age -- either in China or the United States -- they know a considerable amount about elements of literacy.

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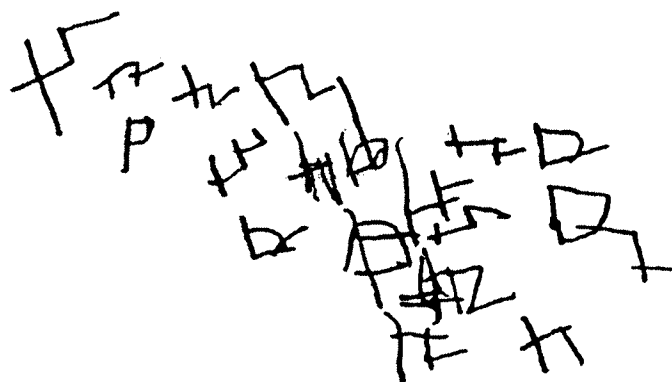
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ILLUSTRATIONS*

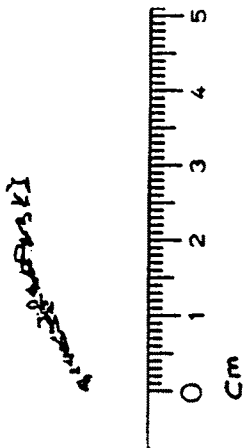
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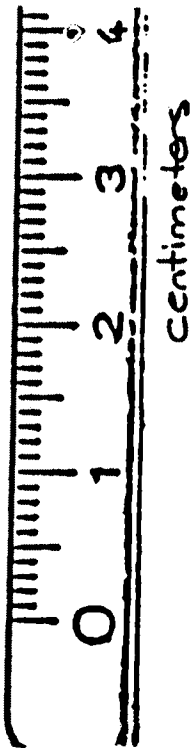
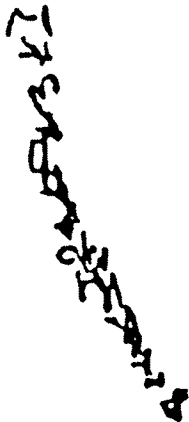
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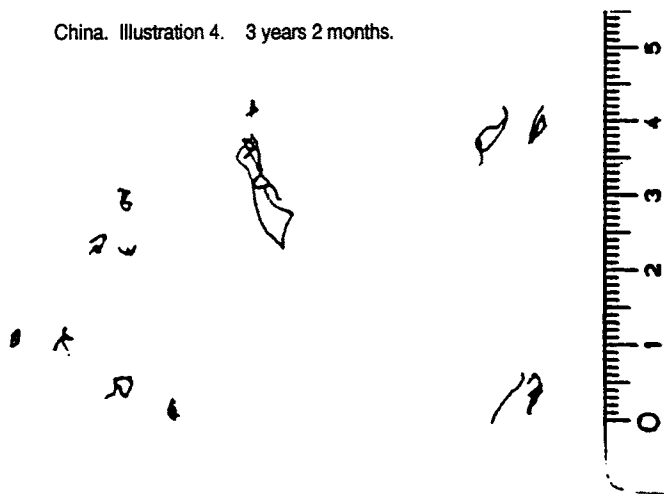
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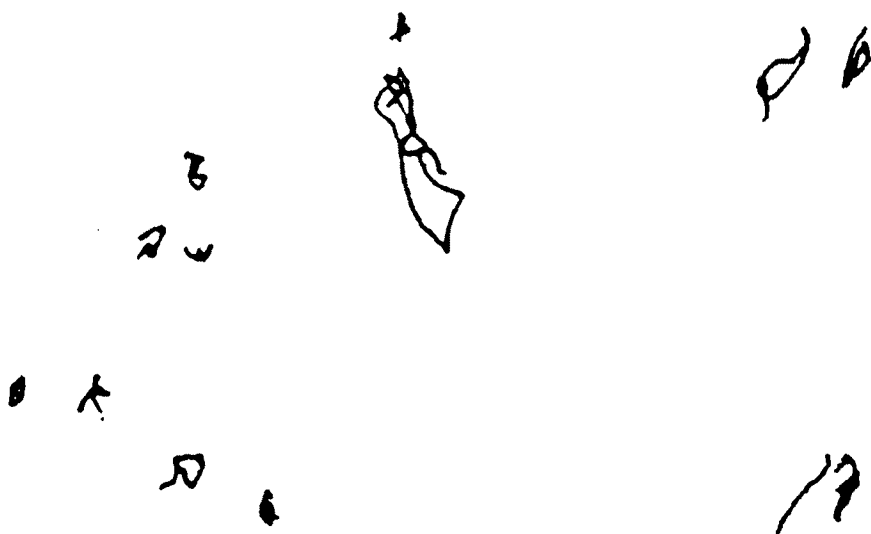
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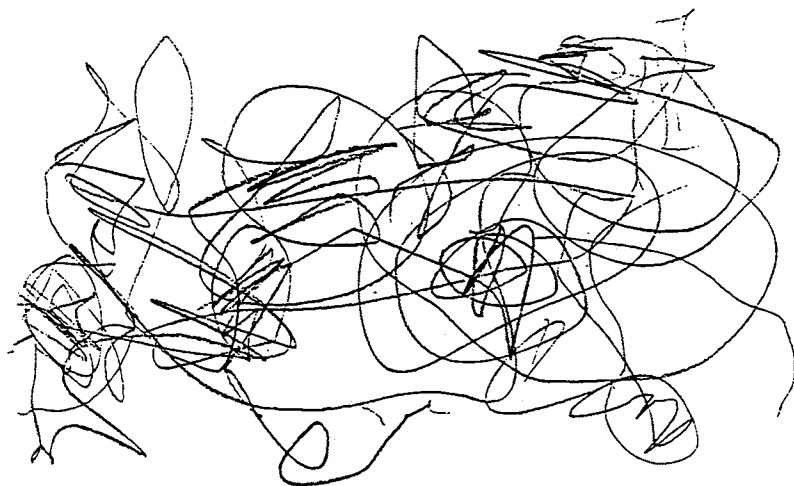
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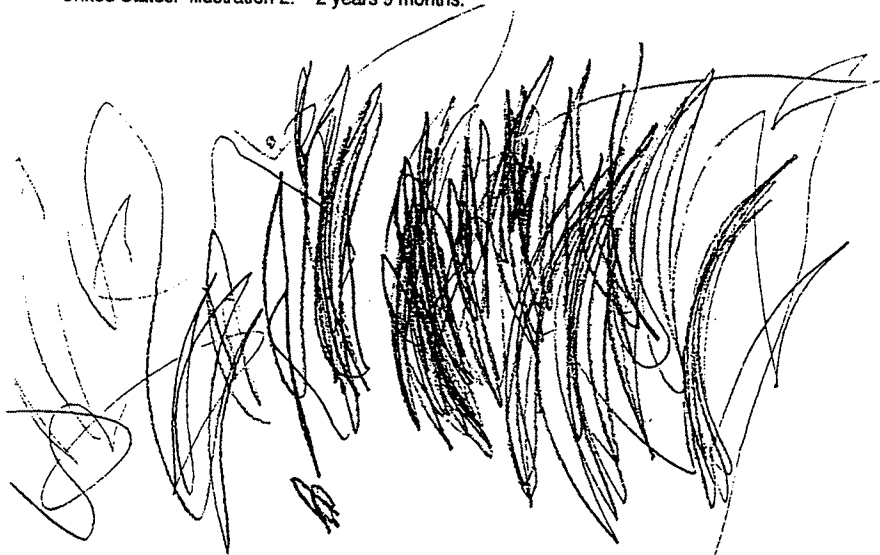
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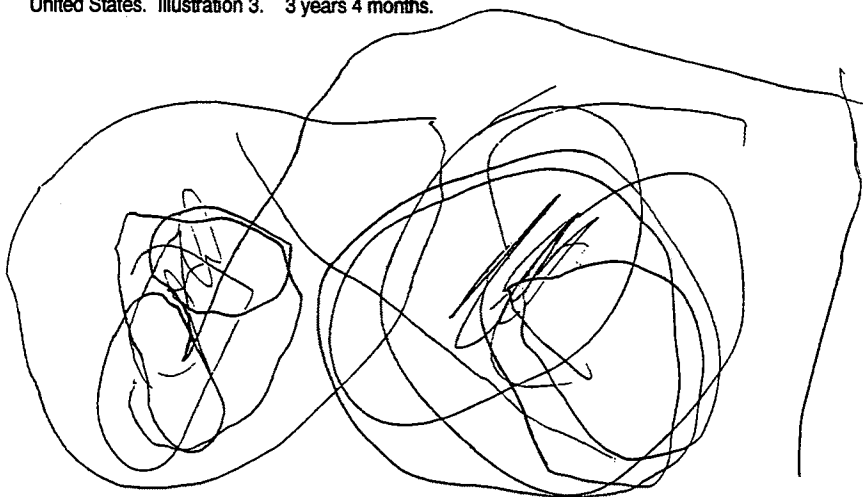
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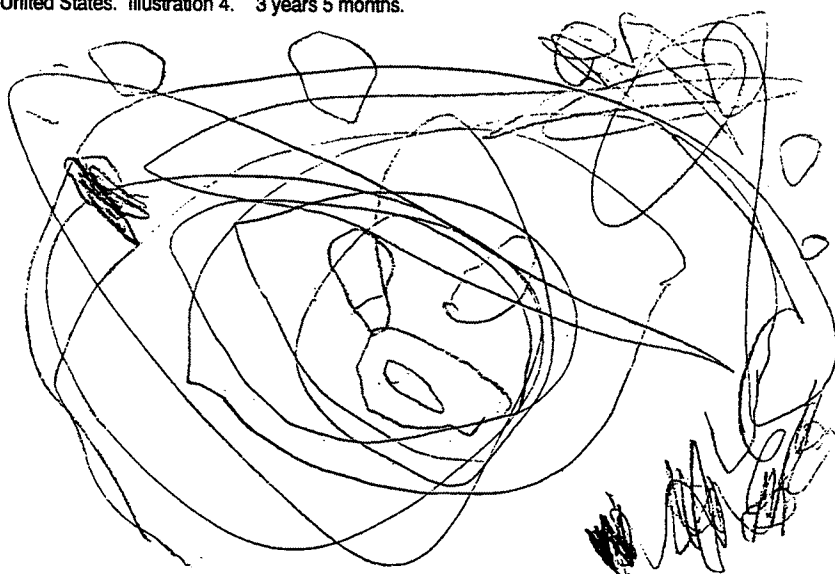
United States. Illustration 2. 2 years 9 months.



United States. Illustration 3. 3 years 4 months.



United States. Illustration 4. 3 years 5 months.



II

KENNETH LEE PIKE: HIS WORK AND CONTRIBUTIONS

"SO FAR AS THE QUESTION OF MY IDENTITY IS CONCERNED...":
K. L. PIKE'S CONTRIBUTION TO THE STUDY OF INTONATION

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The breadth of Pike's contribution to the field of intonation is far too vast to do justice to in a single paper. His major work in the area [1945] has been reviewed by both Bolinger [1947] and Wells [1947]), and has continued to figure prominently in more recent appraisals of models of intonation, like those of Tench [1987] and Gibbon [1976]. For the purposes of this paper, the discussion has been limited to a handful of comments that are intended to give some sense of Pike's contribution to the phonological description of intonation. As such, it will not address the attitudinal perspective to Pike's account of meaning and its componential approach to the generalization of the meaning of contours. Instead, it will touch on some issues from three key phonological areas of the description: 1) a controversy in the origin of the phonemic levels 2) the pause group as a unit of hierarchical analysis, and, 3) the gradience of amplifications and modifications to the basic contours. To provide a simple point of reference for these comments, the opening example in Pike's introductory illustrations [1945: vi] of the chief technical terms used in his monograph has been chosen. The original audio-recording of this example, as spoken by Pike, has been instrumentally analyzed and graphically represented in the accompanying figures. The example, which has been partially cited in the title, along with the notation and its corresponding pitch values are as follows:

TABLE 1

Sample	So 'far as the 'question of my i'dentity is concerned									
Notation	4-	⁰ 3-	-4-	⁰ 3-	-4	4-	⁰ 2-	-4	-4	-3/
F0 (Hz)	133	152-111		139-93			147-196-127		123-156	
Sample	you 'have my 'name and 'address									
Notation	3-	2-	-4-	3-	-4-	⁰ 3-	-4-3/			
F0 (Hz)	115	121-152-92		98-118-98		125-82-100				
Sample	as well as the an'noncement of my profession									
Notation	4-			⁰ 3-	-4	4-	⁰ 3-	-4-3/		
F0 (Hz)	..104			111-142-93		93		125-132-160		
Sample	on the 'card.									
Notation	3-	⁰ 2-4//								
F0 (Hz)	111	167-84								

Phonemic Levels

Pike's phonological account of pitch is one of many phonemic level analyses, generally associated with American descriptions of intonation. While it can be generally agreed that description of intonation in terms of pitch phonemes is indebted to the work of Bloomfield [1933], the origin of the four level phonemic description has been a source of some confusion. This confusion has been fueled in part by the existence of notational differences among phonemic models, and in part by the confusion over the publication dates of independent studies. For Pike [1945], the notation of the pitch phonemes 1 through 4 denote high through low pitches respectively, while the notations of Wells [1945] and Trager & Smith [1951] reverse the order of the numbering system. Gibbon [1976: 193] describes the generally accepted view regarding the origin of a four level phonemic description, as follows:

"In view of the concurrency of Pike's and Wells' publications (1945), it is difficult to decide on the relative priority of these studies with respect to the introduction of pitch levels as phonemes; Trager (1964: 570) and Lieberman (1967: 183) regard the Wells study as having priority..."

Pike's initial description of four discrete contrastive pitch levels, however, predates his 1945 publication. It first appeared in the 1942 publication, **Pronunciation: an Intensive Course in English for Latin-American Students**. Possibly for reasons of low circulation or as a result of differences in the notational representation of the four pitch levels in this earlier work, the reference was missed; something that has not escaped Pike's attention [1967: 540]. The notation used in the 1942 publication provided a graphic representation of the pitch levels, rather than a numerical one [Pike, 1945: 42], but it did adhere to the same descriptive criteria as the numbered notational device proposed in his 1945 work. Despite the confusion over dates and notation systems, Pike's 1942 publication stands as the most likely origin of the description of intonation in terms of four phonemically contrastive relative pitch levels.

Hierarchical Frameworks of Analysis

If we return to the initial illustration in Table 1, the most striking feature, compared to many other illustrations of intonation, is its sheer length. It is far more usual for descriptions of intonation to limit their

examples to shorter utterances that exemplify a single contrast across a grammatically convenient syntagm. Analyzing intonation in terms of a hierarchy of larger phonological units like the emic breath group [1967: 404] and its divisions into emic pause groups sets Pike's work apart from his contemporaries. While Bloomfield had posited a secondary phoneme of "pause pitch" [1933: 15], and the subsequent models of Harris [1944], Wells [1945] and Trager & Smith [1951] included the phenomenon of pause in their accounts of intonation, Pike's description was the first to seek to embed pause as a constituent in a unified theory of grammatical and phonological hierarchies. Pike treated emic pause groups as the immediate constituents of an emic breath group, which he later defined as having:

"in addition to the characteristics of a pause group, an intake of air that marks its initial boundary"
[1967: 404]

This description is a forerunner to much of the recent work in the intonation of discourse. The description of final pause, which often is realized at the end of a breath group, closely resembles Brazil's [1985] description of terminal pitch (visible in Figure 5) and is a crucial element in the delimitation of Fox's [1984] paratone; something analogous to a phonological paragraph. The analytic status of Pike's pause defined units can also be found in the work of Brown et al [1980], who predicate their description of intonation on the identification of pause-defined units, though the question of phonetic versus phonemic pause remains unresolved in their work.

The delineation of criteria in support of phonological hierarchies that extend to units such as the phonological paragraph, section and conversational exchange is no easy matter, and many would say that it is not possible within a strict linguistic framework. Nonetheless, the hypothesis of the existence of higher, inclusive units does reflect our own intuitions about speech, not the least of which is the fact, as Pike has put it, that:

"...one can know for some time in advance ... that the speaker is coming to the end of a paragraph or section ... by the "running down" modifications of his intonation contours as the pitch is let down before ... a final pause"
[1945: 32]

In this regard, Pike's conception of tagmemic hierarchies has provided a descriptive framework within which hypotheses about the

interpretation of the semiotics of speech can be layered. His grammatical and phonological hierarchies can be found echoed in the proposed hierarchies of much of the British analysis of discourse, most particularly in the work of Tench [1987: 265] who acknowledges Pike as the basis for his double-ranking phonological hierarchy.

Contour Modifications

Pike's contribution to the description of the types of modifications that can affect the meaning of a basic contour is substantial. As Gibbon [1976: 189] has pointed out, it was not equalled in detail until much later in the studies of Crystal [1969] and Lehiste [1970]. For the purposes of the present discussion, I will limit my comments to the gradient aspects of pitch modifications, made visible in Figures 1 through 5.

The F0 values of Table I show no marked use of pitch modification *per se*, and yet they support the general gradient tendencies associated with such modifications. We can assign the utterance a mid-Key. There is evidence of a relative separation in the spread of the intervals between the four levels, and a tendency for the spread to diminish across the breath group. The Figures demonstrate a general declination of pitch across each pause group, measured in terms of the baseline of unaccented syllables from which the pitch obtrusions are perceived. And finally, the onset of each medial pause group tends towards the type of partial resetting of the baseline that Eady & Dickson [1987] have suggested is concomitant with a tentative pause, and indicative of an internal boundary. The general physiologically related tendencies of **key**, width of **pitch range** and **declination** or drift inherent in the production of an unmarked breath group of speech, as described by Vassière [1983], provide the norm from which intentional uses of Pike's pitch modifications are interpretable.

The notion of declination or drift in Pike's terms [1945: 77] has a phonemic role to play in our perception of pitch. Pike's recognition of the syntagmatic relativity of pitch height implicitly incorporates drift into our judgements of the perceived obtrusion of a pitch level from its point of occurrence on a baseline. Relatively small pitch movements at the end of a pause or breath group are interpreted in relation to the reduced spread in the intervals and the relative height of the baseline. In fact, final contours in medial pause groups often rely more heavily on sustension for their perceptual salience than on actual pitch movement.

Both pitch height and pitch width have been popularly glossed as "Key" in a variety of intonation descriptions. Bolinger [1986] uses it in much the same fashion as Pike, to describe the general voice range across which the speech is uttered. Halliday [1970] limits its use to a measure of pitch width, uniquely associated with tones 1 (falling) and 4 (rise-fall-rise) in his description. The type of detail discussed in Halliday's work is more completely and conveniently described by the beginning and ending pitch levels of primary contours within Pike's 4-level approach. Brazil [1985], on the other hand, has proposed the use of the term in an intermediate sense. It represents the relative height of a tone (either a single nuclear tone or an entire contour) in relation to the preceding one. As such, it combines both Pike's use of the term Key for voice range and gradience in modifications to the spread of intervals within a breath group, showing a similarity if not a debt to the earlier work by Pike.

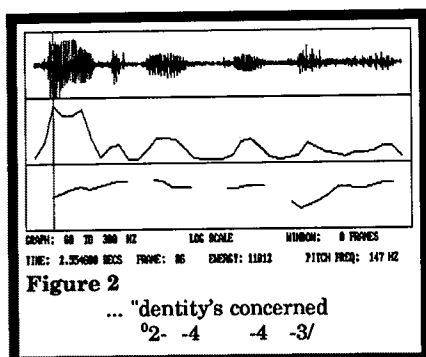
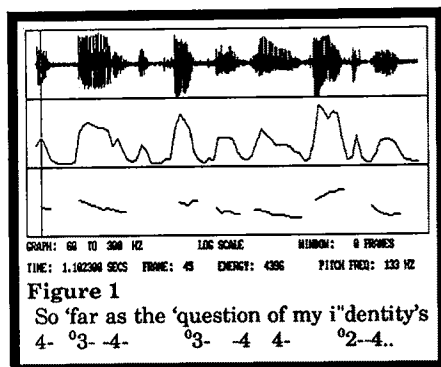
Contour Amplification

The description of the seriation and sequencing of intonation contours in larger units of analysis is very much a contemporary issue. There are descriptions of tone sequences based on grammatical criteria [Halliday, 1985], on phonological criteria [Crystal, 1969] and on discourse considerations [Fox, 1984]. Pike's decision to treat the pause group and the breath group as *emic* led to him to an early address of the kinds of syntagmatic relations that can exist between two or more primary contours in the same *emic* pause group. These, he characterized as amplifications of primary contours.

At this point, it is necessary to introduce a brief word of explanation about the interpretation of the Figures, and a caveat about the interpretation of the instrumental illustrations. The bottom graphic of each illustration represents the F₀ trace, and the graphic above it indicates the relative intensity of the trace. The presence of a creaking vocal quality, identified by Catford [1964: 32] as a variant low pitch¹, among English speakers, is problematic in the instrumental extraction of fundamental frequency. For reasons of creak in the change point of the final ⁰2-4-3 contour, it was necessary to distribute the first pause

¹A similar creaking phenomenon occurs at the "break point" at the top end of a speaker's voice range, and causes much the same kind of difficulty in instrumental analysis. These two points can serve as indicators of a speaker's mid key boundaries.

group over Figure 1 and 2. Coupled with the problem of creak is the related problem, noted by Lehiste [1970: 71], that higher fundamental frequencies than we might otherwise emically perceive, tend to occur after voiceless consonants. This second problem remains, as evidenced in the height of what are actually perceived as low pitched, unstressed syllables of Figure 2. These anomalies, aside the graphic illustrations are a reasonably accurate portrayal of the perceived pitch movements of the breath group.



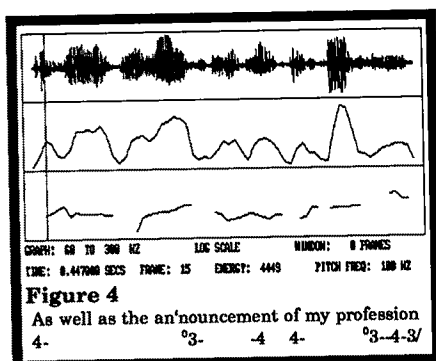
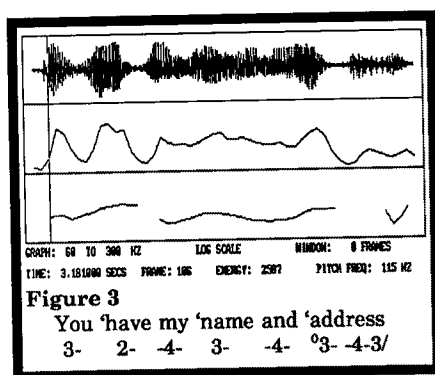
Since Pike's phonological hierarchy does not distinguish foot boundaries, and the contours themselves are relatively short in comparison with those in tonetic approaches to intonation, the contour amplifications must serve a variety of purposes in the description of pitch prominent phonemic levels within the total contour.

In the absence of a tentative pause between primary contours, the transitional intervening syllables perform a double function as the final pitch phoneme for the first contour and as the initial phoneme for the precontour of the next contour, as in Figure 1. The double function is notationally indicated by hyphens on either side of the pitch phoneme (-4-). In these cases, the meaning of the total contour is said to be equal to the sum of its component parts. An argument could be made here that a description of this type of complex might benefit from a notational means of distinguishing the major pitch contour from the minor ones that precede it without relying on the extra notation of stress, since stress is part of a separate system whose independent effects are observable in Figure 3.

In a limited number of instances, Pike recognizes special complex contours for which the arrangement of the primary contours in the total contour does "have a meaning in addition to those which could be deduced from their separate elements" [1945: 69], such as:

Is the newspaper written in the Spanish language?
 3- ⁰2- 4- ⁰3- 3- 4- ⁰3 4- ⁰3- 3

Here, tonetic models would concur with the highly marked rendition of this utterance into an amplified sequence of nuclear contours, as a product of pitch modification. The subsequent "intertonal" relations bear some similarity to what Crystal [1969: 245] was later to describe as subordination in tone sequencing, though his description is disadvantaged by the unnecessary criterion of identical contours.

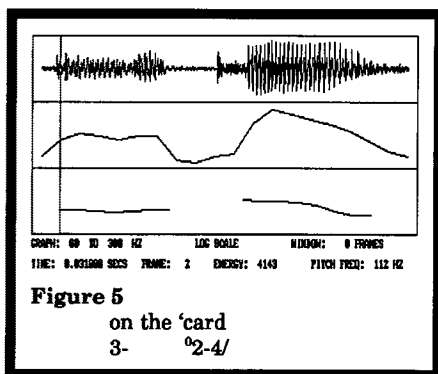


To account for other types of sequences, Pike has postulated a deferred contour; one which is extended by a series ⁰3-4 subsidiary contours, which separate the beginning point of the contour from its end point [1945: 73], such as:

"That's the 'way to 'buy a 'basket Tom.
⁰⁰2- 4- ⁰3- 4- ⁰3- 4- ⁰3-4- 4-3

In such cases, a single large intonation contour encompasses one or more subsidiary and less prominent medial contours. While the concept of a deferred contour is an asset to the description of discourse intonation, its similarity to the unstressed pitch pattern in Figure 3

reflects the gradient nature of its interpretation². It is not always possible to distinguish between cascading precontours and deferred contours on the basis of pitch and intensity. Sometimes the gradient decision is made in light of still other modifications, like the relative rate of utterance.



The last amplification, whose gradience is similar in nature to the other types discussed here, is that of the descending stress series. It captures the kind of contour amplification that emerges from an exaggeration of the precision of our speech for the purpose of intensifying the meaning of a single contour, as in: [1945: 70]

Why hasn't he emptied the ashes!
⁰1- -' -' -' ⁰3-4

Here again, an interpretive decision is required to separate the heavily stressed syllables that have been correlated with basic pitch levels from those which are not perceived as beginning points of contours.

This list does not exhaust the descriptive categories available in Pike's work for contrasting gradient combinations of pitch in the description of contours. It does however provide a synopsis of some of the more prevalent amplifications, and their contribution to the description of the types of sequences realized in the example. The vast range of amplifications noted by Pike do not necessarily separate as conveniently in an analysis as they do in his description. Their gradient nature produces many cases where the analyst must select the most appropriate contrast along a cline of possibilities. Pike's contribution in this area has been to provide such a cline.

²I am not convinced of the accuracy of this notation. Both the instrumental analysis of Figure 3 and the stress diacritics would suggest that a (*) has been accidentally omitted. No other examples of this type of precontour are present in Pike's work.

Concluding Remarks

Descriptions of intonation in English are more indebted to Pike's work than is made apparent by the few comments of this paper. It has gained acclaim from a number of scholars, including Crystal [1969: 47], as "the first really thorough description of the intonation of any dialect of English", and it is in this thoroughness that it has made its most valuable contribution. In terms of my own thoughts on the riddles of intonation, I have found Pike's greatest contributions to be in the areas addressed all too briefly in this paper. He has provided a reliable phonological description of intonation through his contribution of phonemic levels/contours analysis; one which helps to bridge the gaps between American and European approaches to intonation. He has long advocated phonological hierarchies, these have more recently have found a renewed popularity among analysts of discourse intonation. He has contributed substantially to the description of possible emic modifications to the primary contours of his model. And finally, he has offered a systematic account for a wide variety of amplifications, in his explanation of the types of sequential patterning available to primary contours in everyday discourse. All this in one of the most unruly areas of linguistic description.

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FOCUS OF ATTENTION IN NARRATIVE TEXT AND WORD ORDER TYPOLOGY

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"Human nature requires that people *focus* attention in some direction —on some element or concept or view" (Pike 1982:26).

"No unit relevant to human beings exists without its having a relation to a system of interlocking types of context" (Pike 1982:135).

1. INTRODUCTION

The observer's or narrator's viewpoint in shaping discourse is one of the fundamental concepts in Kenneth L. Pike's writings. The narrator is the one who selects particular participants and events for prominence in a story and focuses less attention on others. Another of Pike's basic concepts, going back at least to 1954, is that the sentence is "a totally inadequate starting or ending point. Sentences cannot be analyzed without reference to higher-level relationships" (Pike 1967:147).

Various strands in current linguistic and anthropological theories grow out of these concepts, or at least indirectly are related to them. The EMIC-ETIC distinction, i.e. the inside versus outside observer, is one of the more obvious ones.

EVIDENTIALS, encoding "the speaker's evaluation of the *source of information*..." (Givón 1984:307), and performative expressions have been primarily discussed within other theoretical frameworks but not exclusively so. (See, for example, Wise 1971:5 on the observer as taking an "uninvolved" viewpoint in narrating legends.)

The notion of SUBJECTIVITY in cognitive grammar is comparable in many ways to Pike's "observer viewpoint": "Subjectivity pertains to the observer role in viewing situations where the observer/observed asymmetry is maximized. In the case of linguistic expressions, the relevant 'observers' are the speech act participants" (Langacker 1985:109).

PRAGMATICS —and especially discourse pragmatics which places language usage in its wider communicative context— is obviously compatible with Pike's insistence that units exist in interlocking contexts: the universe of discourse, the discourse as a whole, the speech act situation, including cultural knowledge and experience, etc. Most work on pragmatics and discourse grammar, however, differs from Pikean concepts in that grammar proper is considered to stop at the sentence, although it is generally recognized that the discourse level may condition word order variation and many other aspects of sentence structure. In Tagmemics, on the other hand, the sentence is considered to be just one of the levels in a grammatical hierarchy in which structured higher-level units are posited. Pike's concept that the sentence cannot be understood apart from the context is not the origin of pragmatics and discourse studies within other frameworks. Nevertheless, the widespread, albeit not universal, agreement that the discourse as a whole and the

non-linguistic context condition the structure of individual sentences highlights the importance of his insistence on overlapping hierarchies and the notion of structure beyond the sentence.

WORD ORDER TYPOLOGY, another major theme in current linguistics, receives little attention in works by Pike but discourse or pragmatic conditioning of word order is a focal point in a number of recent studies. (See for example Doris Payne 1990.) Longacre is concerned with "how and to what degree distinctions in *contemporary* word-order typology at the clause affect discourse structure [and particularly the development of the main storyline]" (1990:7).

In previous studies of some twenty Latin American indigenous languages (Wise 1979, 1980a, 1980b, 1982, 1985, 1990, and forthcoming) I have shown some correlations between word order typology on the one hand, and strategies for identification of participants, strategies for focusing attention on particular events, and cohesive devices in narrative texts, on the other hand. Longacre (1982) contrasts clause-chaining and other aspects of discourse organization in Biblical Hebrew, a vso language, and in Aguaruna, an sov language.

The purpose of this present paper, which is a report of the results of research to date, is to show some correlations between word order typology and strategies available to the narrator for focusing attention on particular participants in a narrative text, thus bringing together two of Pike's major themes: focus of attention and the discourse context of a sentence.

For the purposes of this paper FOCUS OF ATTENTION needs to be distinguished from FOCUS as it is used in much of the current literature, although the terms overlap in some respects. Focus of attention is used here in the sense of the principal character in a narrative in much the same sense as Givón defines TOPIC within a thematic paragraph: "the participant *most crucially involved* in the action sequence running through the paragraph" (1983:8). Focus, on the other hand, is often used of CONTRASTIVE FOCUS resulting in marked expressions, e.g. marked word order, contrastive stress, clefting, etc. and is more closely related to the notion of topicalization,¹ i.e. locally important participants. Focus of attention refers to the globally important participant.

2. CONTRASTS BETWEEN SOV LANGUAGES AND VSO LANGUAGES

Strategies for focusing attention on participants are sketched first for Aguaruna, an sov language of the Jivaroan family, with briefer mention of some other sov languages of Latin America. These descriptions are followed by sketches of strategies in Amuesha and in Nomatsiguenga, vso languages of the Maipuran Arawakan family.²

¹Givón (forthcoming, ch. 17) gives a broad survey of phenomena related to topicalization and focus, i.e. locally and globally important referents.

²The data for Aguaruna are from Larson (1965, 1978, and 1984); the Amuesha data are from Duff-Tripp (1974, 1981, and private communications). In both cases I have added some of my own observations in interpreting the data. Data for the other languages mentioned are from Hart and Hart (1981), Newton (1978), Rich (1981), and Wise (1971).

2.1. Focus of attention in Aguaruna

The participant in focus in an Aguaruna narrative is introduced in a subject noun phrase.

Although Aguaruna is an *sov* language and *sov* order is by far the most frequent, order is not rigid. Consequently, a different word order can be used to focus attention. In at least one text a rare, marked word order, *IO-V-S-DO*, along with the subject noun phrase heightens the prominence given to the main character when he is introduced. Direct discourse is frequently used to give additional information about this main participant or to highlight his movements. Once the sequence of events is established a noun phrase referring to an already introduced principal character marks a change of topic, i.e. focus.

Minor participants, on the other hand, are introduced in an object noun phrase or in an oblique case. If a minor participant is subject, the reference is by means of a switch-reference suffix in a subordinate verb.

2.2. Focus of attention in some other *sov* languages

In Chayahuita, an *ergative sov* language of the Cahuapanan family, focus of attention is placed on a participant by the use of a noun phrase or a pronoun when these are not necessary for identification. The emphatic suffix *-so'* can give even greater attention (Hart and Hart 1981:127).

In Arabela, an *sov* language of the Zaparoan family, the suffix *-ri* occurs when a principal participant is introduced. Once a participant is in focus, if he continues as subject, *-ri* is not repeated (Rich 1981:158-159). In stories where the characters are more important than the events, nouns are used instead of pronouns to maintain focus on a particular participant (ibid.:174). The subject normally precedes the predicate but another element can be highlighted by fronting and by placing the subject after the predicate. The subject can also be deleted if the same third person agent is referred to in successive sentences. The participant in focus is the point of reference for kinship terms.

In Guarayu, an *sov* language of the Guaraní family, the principal participant is introduced by a noun phrase at the beginning of a narrative and afterwards is not referred to by a noun except at the beginning of new episodes or sections if other participants have been introduced. On the other hand, noun phrases are used frequently to refer to minor participants. For example, in the tale of the fox and the jaguar, the fox is named in the introduction and at the beginning of the action; thereafter until the next major break he is referred to by pronominal affixes only.

2.3. Focus of attention in Amuesha

As in Aguaruna, the principal participants in Amuesha narrative are usually introduced by means of a subject noun phrase, i.e. as agent, at the moment when they first figure in the action. Or, the principal characters may be introduced in an existential sentence such as: 'There was a woman; she had two children.' Minor participants are referred to by pronominal affixes in the verb until the point where they play a principal role or they may be introduced by an object noun phrase. Inanimate, minor participants are usually introduced by an object noun phrase.

The participant in focus in an episode or large section of a narration is the point of reference for the kinship terms. In one legend where a brother and sister are the main participants in the first episode, the phrase 'her brother' shows clearly that the sister is in focus even though the brother may be the local theme or topic —marked by svo order instead of vso and the topic marker *-pa'*. Later, when the brother becomes the focus of attention, the girl is referred to as 'his sister.' Thus, Amuesha provides an example of the importance of differentiating local topic or focus from the global topic or focus of attention: The global, episode-level focus of attention is maintained by the kinship term employed while word order variation is a local topicalization strategy.

At the peak of the narrative, the main participants are referred to by pronominal affixes only. In contrast, in earlier episodes the principal participants are referred to by noun phrases in four out of five sentences.

Even though reference is limited to pronominal affixes at the peak, focus of attention is maintained on the principal character by the use of third person singular forms —even in the case of twins acting together—to refer to the hero. The villain(s), on the other hand, are referred to by third person plural affixes; although the villain is a main participant, he is not the one in focus at the peak of the narrative.³

2.4. Focus of attention in Nomatsiguenga

In Nomatsiguenga, another Maipuran Arawakan language with vso word order, minor participants are referred to by pronominal affixes until after the principal participant has been introduced by a noun phrase as subject of an active or existential sentence, i.e. the first noun phrase must refer to the participant in focus. Later on, minor participants may be introduced by an object noun phrase or in an existential sentence, e.g. *ainta i-sari* 'there-is his-relative.'

As in Amuesha, the participant in focus is the point of reference for the kinship terms. For example, in one legend, the anguished mother says of her trickster god brother 'he turned his nephew [rather than my baby] into a rock.'

Again, as in Amuesha, the singular is used to refer to the participant who is the focus of attention. In one narrative of a fishing trip, singular pronominal forms refer to the subject of key actions even though all members of the fishing party arrived and dammed the stream. Since "Father" was the initiator of the trip, the principal actions are ascribed to him. When they are ascribed to other members of the party, a benefactive noun phrase or some other oblique form refers to Father to keep him in the spotlight, even when a noun phrase would not be necessary to eliminate ambiguity.

Gender provides another strategy for focusing attention on a participant.⁴ Normally a third person masculine pronominal prefix with a plural suffix is used to refer to a mixed group. However, when a woman is the central character in a narrative, the third person feminine prefix with a plural suffix focuses attention on her. Similarly, the use of masculine

³Gilman (1961:89) made a similar observation with regard to the Cid. He pointed out that the author refers to the Cid in the singular while less important characters always act in pairs: Raquel and Vida, the daughters of the Cid, etc.

⁴Amuesha retains only vestiges of the masculine-feminine gender distinction which was apparently present in proto-Maipuran.

or feminine reportative forms in legends depends on the gender of the participant in focus throughout the narrative.

3. CONCLUSIONS

Apparent differences in strategies for focusing attention on a participant in the sov languages and vso languages discussed here are: the use of singular vs. plural forms, the selection of feminine gender when a woman in a mixed group is in focus, and word order variation.

The first is probably only an apparent difference. The use of singular forms to refer to plural participants is frequently mentioned in descriptions of indigenous languages of Latin America. It may very possibly be a strategy for focusing attention in sov as well as vso languages, although it is not mentioned as such in the descriptions of sov languages on which this study is based.

On the other hand, gender distinction is relatively rare in sov languages of Latin America and probably tends to correlate with vso order as a strategy for maintaining focus of attention in a narrative. Nevertheless, in at least one sov language, Culina (Arlene Agnew, private communication), the selection of the masculine form or the feminine form of several verbal and sentence suffixes depends on the gender of the participant in focus throughout a narrative or an episode of it.

To date, then, the primary difference in strategies for focusing attention on a participant in narrative text is word order variation. Variation occurs in both the sov and vso languages discussed here, but it marks different levels of prominence in sov and vso languages. In the former, or at least in Aguaruna, it is highly marked and is used to focus attention on the principal participant at the point of introduction. On the other hand, in the vso languages discussed, variation in word order is frequent and fronting to the preverbal position marks the local topic which may or may not coincide with the global focus of attention.

Before pursuing the consequences of different basic word orders in strategies for focusing attention, it might be well to heed Mithun's suggestion that the "assumption...that all languages have some basic, syntactically defined, word order is not universally valid.... In syntactically based languages, pragmatic reordering is highly marked... In pragmatically based languages, on the other hand, all ordering reflects pragmatic considerations" (1987:325). That is, a topic for further study is the possibility that different strategies for focusing attention arise from differences in syntactically based and pragmatically based languages rather than from differences in word order. Perhaps Aguaruna will turn out to be syntactically based and Amuesha pragmatically based.

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THE PIKEAN LINGUISTIC UNIT AND MIDDLE ENGLISH NARRATIVE STRUCTURE

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1. Introduction. The narrative poetry of the Middle Ages challenges both the assumptions and the methods of much current discourse analysis. Although it is widely assumed that "scripts," representing the culturally assumed ingredients of any communicable experience, underlie discourse (e.g. Schank 1975; Schank and Abelson 1977), in the West at any rate there is currently no speech genre in which the utterance of such patterns for their own sake, as formal units of expression, is as such accorded prestige. Such speech is found childish or incompetent where the purpose of story-telling is confined to the dislocating of conventional expectation, or the imposition on the hearer of an underlying "point" of the speaker's own (e.g. Labov and Waletzky 1967:34-5; Polanyi 1979). Yet conventionalized utterance of conventionalized meaning has primary value in medieval poetry: "C'est le caractère conventionnel de la forme qui en forme l'expressivité" (Zumthor 1975:108). Such poetry often seems thoroughly indifferent to what intellectual culture in the West since the rediscovery of Aristotle considers coherent plot (Ryding 1971: Introduction), yet plot is the theoretically significant element of story in most approaches: linguists tend to treat story from the top down, as the form of speech which bears plot and hence is to be segmented through plot elements (e.g. Longacre 1972; Pike and Pike 1976:343), or through clause function at or near the same level (Labov and Waletzky 1967).

Literary scholars, however, have linked structure in medieval narrative to its "episodic" nature (e.g. Vinaver 1971; Ryding 1971:86ff); standard "topics" (Turville-Petre 1977:27) provide "building blocks" such that "from one or two verses to many hundreds we can refer to the same set of events in the story" (Bruckner 1980:18). "Conventional units of content" produce stock "scenes" (Fleischman 1990:257), or "event-clusters or episodes, each having a satisfactory sort of narrative unity," which "seem to be, as it were, ready-made pieces introduced into a loose structural frame" (Ryding 1971:33). This paper suggests that such observations are in fact intuitions of a generic demand, that action, as the "smallest indivisible unit of plot construction" (Lotman 1977: 232-35), be narrated as formal text unit. Such units are well-formed both as matrices of narrative tagmemes, and as tagmemes of larger constructions (Pike 1962; 1971; 1976). Pike's triple perspective on the linguistic unit, as at once particle, wave, and field (1959; 1967 passim), clarifies the relation of such units to one another, and hence poetic meaning.

This is not the first attempt to read medieval narrative on tagmemic principles. Eugene Dorfman (1969) introduces the "narreme," a term based on Martinet's version of the phoneme (1964), and on tagmemics via Elson and

Pickett (1960). The narreme is a "minimal structural unit filling a slot in the sequence of structural units constituting the narrative" (Dorfman 1969:72). His minimal unit, however, functions on the highest level: the narremes Quarrel, Motive, Act, and Result provide an overall frame for French and Spanish epic and romance. Yet with no definition of lower-level items he has no justification of higher-level units that rely on their existence (Bloomfield 1980:211).

Susan Wittig (1978) defines narrative text as a syntagmemic hierarchy (40ff), postulating for a Middle English verse corpus a constant syntactic item defined as a stereotyped "verbal pattern which fulfills a metrical requirement" (28). The mapping of syntactic to metric structure is then abandoned for the "motifeme" (54-5; from Pike 1967:194-5), a constant meaning such as the "Exhortation," the prayer for divine sanction that may open these works, or the "Procession" at a hero's triumphant homecoming. The motifeme is hence not necessarily an item of narrative; to an absence of hierarchical coherence Wittig adds a confusion of discourse types. Her third or highest level, the "scene-pattern" (Wittig 1978:82-4), may or may not refer to valid text divisions; the complaint brought against Dorfman stands.

Wittig ignores the basic principle that "etic" and "emic" are interdependent analytic tools (Pike 1967:Ch.2); in so doing she snatches failure from just literary intuition. She sees that in ME verse narrative meaning can be marked off into a thematic "nucleus" with necessarily loose peripheries (1978: 83); but in this rediscovery on the text level of Pike's wave function, basic, in the kind of verse she is dealing with (4.2. below), to narrative as to other modes of cohesion (Pike and Pike 1982:26, 439), she rejects even the possibility of a narrative particle. "A completely definable unit with a clearly marked beginning and ending; ... assembled into any narrative sequence, it is discrete, and its junctions can be established" (Wittig 1978:79) is "far too rigorous for the treatment of narrative; it does, in fact, violate our initial assumption that any narrative is a whole of interacting systems" (80). Lacking an etic theory of narrative, she cannot conceptualize a narrative unit which, belonging to text as "an interwoven pattern of units which fuse and interpenetrate" (80), cannot and need not pretend to supplant metrical or any other units (Lamb 1966:542).

Tagmemic theory insists upon the importance of discourse genre to grammatical description (Pike 1964; Klammer and Compton 1970). Etic formalization of narrative as discourse genre calls for a syntactic rather than a semantic definition (Labov and Waletzky 1967:13); Labov and Waletzky define narrative not through the sequentiality of events referred to (cf Pike 1981:26ff; Pike and Pike 1983:36), but through meaning realized as a syntactic tie: clauses which cannot be displaced in relation to one another "without changing the inferred sequence of events in the original semantic interpretation" (Labov and Waletzky 1967:21) are said to be in a narrative relation to one another, and hence narrative clauses. The tie between such clauses is called temporal juncture (25-8). Narrative becomes that discourse genre in which experiential flux is organized as "event cluster," defined as discrete by realization as clause

(Gleason 1964:94-5; 1968:44-5), the meaning of any one such clause then being created by, and inseparable from, its place in a sequence which it creates and by which it is defined.

Although Labov and Waletzky confine application of their syntactic definition of narrative to the functions of clauses in organizing complete stories, an emphasis continued by their followers in discourse studies (e.g. Wolfson 1979; Tannen 1982), and in linguistically influenced literary studies (e.g. Watts 1981; Fleischman 1990), their work implies a distinction between story, as culturally defined global speech act, and narrative, as exponent of Halliday's textual metafunction (1979), realizing a specific mode of cognition as linguistic surface. The top-down, or plot, approach is therefore abandoned, in order to consider the narrative clause as minimal component of narrative text. Events, rather than situational roles (Pike 1964; 1981:39ff), are the emically significant element; role is defined at a level of generic organization higher than that of the action unit postulated.

In realizing meaning as syntax, temporal juncture imposes one more "hybridization of tagmemics with stratificational theory" (Pike 1971:88); the relationship between poetic text as etic structure and poetic convention as "eme" is most easily stated as the realization of semology as morphosyntax. Narrative is more than chronological sequence (cf Longacre 1972:359; Pike and Pike 1982:242ff); meaning as clause order indicates that event meaning is inseparable from a pre-existing structured set which may not be realized fully by textual surface, but is nevertheless presupposed in the structure of the text unit (4.1. below).

2. Narrative Clause and Narrative Unit. As unit of discourse and syntax at once, the narrative clause by definition implies the existence of narrative as morphosyntactic unit, unit of form, and composite of formal items of a lower rank. If a clause is defined as narrative, the syntactic unit "finite clause," defined in discourse terms as narrative clause, is thereby defined as a constituent of a larger unit next to it in a hierarchy of compentence: given a narrative clause $\underline{x}$, a formal unit related by temporal juncture to at least one other such clause, there must be at least one larger unit, also a narrative unit of some kind, of which clause $\underline{x}$ is a component, which establishes its status as a narrative clause, which is itself definable as narrative by clause $\underline{x}$ as part of a set of at least two clauses in which clause $\underline{x}$ is placed by temporal juncture, and which is composed of that set of clauses so linked. The simplest exponent of this unit is the minimal narrative (Labov and Waletzky 1967:28; Labov 1972: 360),¹ the pair of finite clauses linked by temporal juncture. Insofar as the unit is narrative, the sentence is irrelevant (Wald 1987:483).

Such a unit is Janus-faced, a form-meaning composite by definition, since temporal juncture depends on coherence of meaning between separable clause structures, functioning only through the underlying coherence of events in relation to one another.² Spring came; the flowers bloomed is, to anyone raised in a Western culture at any rate, narrative; Spring came; the store went

bankrupt, without an explanatory context, is not. Narrative coherence lies in semology, not in morphosyntax.³

3. The Middle English Hunt as Unit of Narrative. The "building blocks" of ME verse narrative may thus be modelled as semologic constructs of events, the unit on the semologic stratum realizable as clause, narrative or not. Between the narrative clause and the work, results indicate at least two units, labelled actions and episodes. Actions are composites of events conventionalized in semology and realized as narrative text; episodes are composites of actions. A model of the action analyzed, the Hunt, is presented in an appendix to this paper. (An annotated version, and discussion of elements with which it fails to deal, primarily the conventionalization of space, can be found in Kropp 1991: Chs.2 and 3.). As narrative text, all Hunts in ME poetry realize a constant set of events, represented as a set of clauses structured by their narrative relationship to one another. The invariability of event structure is such as to suggest that each event, in its correlation with a constant slot, represents a narrative tagmeme.

The matrix in tagmemic theory becomes a tagmeme in a wider context (e.g. Pike 1971:83); the Hunt is both field of meaning, a matrix within which narrative tagmemes are structured, and a unit within a wider generic structure of actions and their combinations. Although a definition of the Hunt as tagmeme must await a typology of generic actions, leading to a syntax of their combinations and the hierarchies involved, certain preliminaries are clear: a narrated Hunt may initiate the work or a major segment of it, or may be internal to the string of challenges, journeys, feasts, love affairs, verbal contests, and fights of which these poems consist.⁴ The Hunt is never final; no story ends with a hunter riding off after a deer, never to be seen again. As narrative matrix, the Hunt is an exponent of purposes and assumptions in medieval aristocratic culture; hunting, together with battle and "courtesy," is one of three activities by which aristocracy defines itself in contemporary sources (e.g. Gaston Phébus 1971:51). The poetic matrix is embraced by wider cultural expectations.

The poetic Hunt is both a narrowing of real-world practice, and a rigidly organized idealization of values behind it. Poetry maintains a simplicity and rigidity of human and animal role, and of event line, compared to prescriptive hunting treatises; structures of time, space, and agency are limited in verse as they are not elsewhere. In an activity necessarily that of a group, poetic texts distort real-world practice towards a single line of events dominated by a single agent, and away from simultaneity and cooperation. However, this distortion itself realizes affective values stated most directly in real-world reference; in all contexts, hunting carries ruling values of hierarchical power and heroic display, such display being a basic element of heroic and knightly story (Jackson 1982:12-15; Baumgartner 1985:14-15).

The corpus analyzed and its extrapoetic background are described in Kropp 1991:Ch.2; it consists of 28 Hunts, from works dating from the late

thirteenth century to about 1450. The shortest work has 49 lines, the longest 12,195. The corpus is confined to verse as the dominant narrative mode of the period; otherwise it crosses boundaries of genre, dialect and prosodic form. The narrative unit is not isomorphic with prosodic units, nor does its structure coincide with graphic indicators of manuscript divisions, with "parts" (e.g. Chaucer's *Knight's Tale*), nor with "fitts" (e.g. *Sir Gawain and the Green Knight*).

3.1. A Semologic Model of the Narrated Hunt. The Hunt is modelled on the semologic stratum as a Labovian representation of narrative text, emending Labov and Waletzky's schematization for the sake of rendering constant implications as events. Numbering each event/slot (H-) produces a simple method of coding each text by grammatical item.

Events being themselves cultural constructs, they can only be inferred from real texts; events in the model are the realize of finite, not necessarily narrative, clauses in at least two Hunts. Events labelled narrative are realized in a direct narrative relationship to the event preceding. A coordinate clause is one which may be displaced in relation to one other clause only (Labov and Waletzky 1967:22-3); an event realizable as coordinate to another is placed immediately after it, and before any event narrative to either of them. The restricted clause may appear anywhere within a subset of clauses (23); this subset is its displacement set (21-2, 27). Restricted events are placed at the head of their displacement sets; a displacement set in the model thus indicates the range within which realization may occur in text.

Labov and Waletzky define as free clause one which may be realized anywhere in the text with no disruption of semantic narrativity (22). The rigidity of ME text convention is such to make this term misleading; action is meaningful in and as structure, not as discrete relationships between discrete clauses. The free clause has been replaced by the narrative function: a function is an attribute of the Hunt, or of hunters, formulated as an event in the narrative set. Semologically, it is a constant supposition of other events or subsets of events; as such it is always present to a given slot whether realized or not. The narrative function answers to real-world expectation as it can be inferred from medieval sources; horn signals (H25), for example, were codes in their own right (e.g. Gaston Phébus 1971:144-45; Hardouin 1855:1-26), essential to cooperative action among men and dogs working out of sight of one another. Variation in the barking of dogs was meaningful; a good hunter knew by ear what was happening in the chase (*Les Livres du Roy Modus* 1932 vol.1:39, 42; Gaston Phébus 1971:133-35).

An event may be functional of a function: H25 f24, "The Hunter blows the Chemin" (the signal of departure) implies that he blows it perfectly (H4) whether prowess is realized or not. The three universal functions, H2, "Joy," H3, "Leadership," and H4, "Prowess," are defining conditions of the Hunt and of one another: hunters grieve at the loss of a leader and rejoice at his return; leaders and followers are perfect in their reciprocal roles; prowess is joyful. Hunters, dogs, and horses may become tired, disheartened or frightened; such

events are conventional reversals of convention which are semologically based and structurally constrained (Kropp 1991:115-141).

Coherence being semological, not textual, a realized function is functional of an event/slot in semology, not of a clause in text. H25, for example, signifies the event of which it can be functional that defines the narrative slot arrived at, whether that event is realized directly or not. In Partonope of Blois, The hornes sownen [sound] as any belle (l.533), realized narrative to H26, realizes H28, and thus the inception of the core segment of the hunt (4.1. below). Realization of structural slot by a narrative function is essential to the cohesion of the Hunt in wider narrative fields (4.3. below).

The knit line as event in semology is a phenomenon of coherence between the Hunt and other actions. As item of text it is thus cohesive as the term is used in tagmemic theory (Pike and Pike 1982:439). Knit lines may be events, such as delight in sunrise (H9), feasting (H59), or presentation of trophies (H58), that the Hunt has in common with other actions; or functions realized through extraconventional agents or patients.

Excluding metanarrative, any grammatical item of Hunt text may be an exponent of a narrative tagmeme; from clause to morpheme, any item may realize an item of meaning represented on the semologic stratum as an event. So far as the text is narrative, that is, it may be useful to treat any morphosyntactic item as a more or less drastically rank-shifted clause. Events may be realized as non-finite clause embedded in metanarrative: And forth this noble quene thus lat I ride (H24) (Chaucer 1987: The Legend of Dido l.1210); or as phrase: in Chaucer's Knight's Tale the line To Thebes, with his olde walles wyde (l.1880) realizes H56. Functions especially may appear as single word or as morpheme. In He with his hables on hy3e horrses weren (Sir Gawain l.1138), hy3e realizes H20; in Hij of-ernned her stedes bo - "They rode their horses to exhaustion" - (The Romance of Guy of Warwick l.6733) of-realizes a convention-reversing negation of H20.

Modelling any item of Hunt text as four-cell tagmeme will be complicated accordingly. This paper remains on the level of narrated action as text unit, in order to illustrate the value of Pike's threefold perspective to literary understanding.

4. The Hunt as Particle, Wave, and Field

4.1. Hunt Text as Particle. Once the corpus is coded clause by clause (Kropp 1991 Appendix B), simple enumeration reveals that as particle of text, the Hunt is a spatio-temporal frame for a emic core indicating reciprocal roles, realized as chase (H39 and/or H40) and evasion (H38). The events realized most frequently are, in descending order: H53 (24 texts); H24 (23 texts); H1 and H28 (17 texts); H38 (16 texts); H39 and H40 (15 texts); H47 and H56 (13 texts). The Hunt as text can hence be reduced to two sets of events, although the two are not of equivalent structural value. These are (a) a spatio-temporal framing pair, within which occurs (b) events whose emic nucleus is an interdependent and interdefining pair, semologically parallel and

complementary. H24 and H53, which create the Hunt's spatial conditions, are in clausal realization the closest to a compulsory element it has.⁵ Although sunrise (12 texts) and sunset (10) are realized clausally far less frequently, spatial conditions are, as narrative events, temporal conditions; nobody catches up late with a chase already begun; nobody gives up from wet clothes or more domestic interests to go home early.

Semologic entry and exit conditions are not structural in text, but implicit in both agency of structural events, and temporal organization. H1 is presupposed by H3; thus in the H24 slot: 'Say, felawe, who shal hunt here?' ...'Th'emperoure Octovyen' (Chaucer 1987: The Book of the Duchess ll.366-368), H62 is implied in any evening's entertainment, and in the ending of any narrated day.

From the unleashing of the dogs (H28) to the kill (H48), the Hunt constitutes an emic situation of pursuit and evasion. (A subconventional board-hunt adds or substitutes confrontation between two evenly matched antagonists [Kropp 1991:121-29]). This relationship of roles, or functions in the Proppian sense, is realized as text by clauses which carry role relationships stated in the model as conventionalized functions. This core is Hunt only; it is, as nucleus in Pikean terms (1967:74-5), the element in highest structural contrast, entering into other narrative structures only by semologic contrast. (Since the conventional relationship between hunt and animal prowess is that hunt prowess dominates, the animal's death is implied in the core, but is not itself structural and does not realize closure.)

"Pursuit and evasion" cannot be reduced to a specific pair of clauses as "spatio-temporal frame" can, or even to narrative text. Dido, for example, realizes it as H37 followed by speech dramatizing prowess functional to H40:

The herde of hertes founden is anon,
 With "Hay! go bet! pryke thow! lat gon, lat gon!
 Why nyl the leoun comen, or the bere,
 That I myghte ones mete hym with this spere?"
 Thus sey these yonge folk, and up they kylle
 These bestes wilde, and han hem at here wille.
 (ll.1212-1217)

The Hunt as particle is thus, to borrow a term of Ryding's for medieval narrative as literary structure (1971:48), an accordeon: at its maximum compression it implies a complete set of events through the structure which defines them as narrative text. The Labovian minimum:

He did but, as he was wonte,
 On the mornynge erly went to hunte,
 At eve come home agayne.
 (Ipomadon ll.2861-63)

contains the entire semology in implication. From these lines to the 171 clauses of the second of the three hunts in Sir Gawain, a constant set of events is realized within a constant structure which as such signifies their invarying relationship.

4.2. Hunt Text as Wave. The margins of this constant structure will "flow" or "smear" into the margins of other actions on the same level (Pike 1967:74-75, 307-11). The boundaries of discrete units become peripheral segments of one another, and thereby components of a higher-level unit here labelled the episode. (The "Hospitality" segment to which the hunts in Sir Gawain belong may, however, manifest yet a third level.)

Hospitality is described thematically of a French corpus by Bruckner (1980): a wandering knight arrives at a strange castle at night, is entertained, and leaves at morning, in Gawain's case three days later, in the case of Partonope of Blois, who wanders to the castle of a fairy queen, a year later. The displacement set of H5 permits the Hunt to start the night before, as it does in all three hunts in Sir Gawain.

Gawain, known everywhere as the most courteous knight in the world, arrives at Hautdesert castle. To entertain him after an arduous journey, his host proposes a game: the next day he will hunt while Gawain rests and amuses himself indoors; at the end of the day they will exchange what they have won. The next day's Hunt is paralleled by a Debate between Gawain and his host's wife, as to whether or not courtesy demands that he make love to her.

The Hunt is initiated in direct speech (ll.1096-1125) within events of evening Hospitality - feasting, joking, wine-drinking, and finally sleep in luxurious bedrooms - that have much in common with the final segment of the Hunt. Hence the exchange game can be narrated as a triple loop, repeated three days running. The Hunt morning is knit into a segment concluding Hospitality, as unnamed guests leave while the household prepares to hunt. Everyone gets up (H10), dresses (H12), and mounts horses (H19), but only departing guests call grooms, prepare baggage, saddle horses, and pick up their reins (ll.1126-43). The Debate (ll.1177-8) is made cohesive by parallelism in the Hunt core (H2 f40), a parallelism realizing an emic contrast, explicit in praise of hunting hunt in non-narrative sources, between shelter, stasis, and the moral dangers of lingering there on one hand, and the joyful innocence of outdoor sport on the other:

Pus laykez pis lorde by lynde-wodez euez,
And Gawayn þe god mon in gay bed lygez,
(ll.1178-79)

4.3. Hunt Text in the Poetic Field. Middle English, unlike medieval French, has preserved no works in which hunting is coextensive with story (Jackson 1985:168); the Hunt is not a generically self-contained field. However, one tagmemic principle is evident: the Hunt enters into, is informed by, and becomes a context of other fields of meaning through its own structure as

particle (Pike 1982:18ff). Riding out in the morning and riding back at night may become metaphors of more general, not necessarily narrative, cultural constructs. In The Parlement of the Thre Ages, a hunter wanders out to the woods, makes his kill, and falls asleep in the heat of the day. He then dreams a Debate on the joys of life, among three people called Youthe, Medill Elde, and Elde. The temporality of the hunt's spatial structure becomes emblematic in dream (Waldron 1972:791; Kernan 1974): Youthe, the morning which takes a hunter to the woods; Medill Elde, the full day in which he makes his kill (l. 100); and Elde, the sunset which takes him home. Elde ends Debate and knits it back into Hunt text in a single trope: "Deth dinges on my dore/I dare no longer byde" (ll.653-4), picked up in Hunt structure in the sound of a horn (H25 f53;l.656), which wakens the Dreamer and sends the Hunter home. There is a comparable knitting of Hunt and Dream around death and a horn signal in Chaucer's Book of the Duchesse (ll.1311-13).

Cohesion with poetic field via action structure is not confined to the Hunt's spatio-temporal frame. Gower's Confessio Amantis is an extended conversation: a would-be lover inquires of a priest of Venus how to love; the priest answers with tales of the destruction of love by each of the seven deadly sins. The Tale of Narcissus turns Ovid's version of the Narcissus myth into a medieval exemplum of pride by combining the initiating function of the Hunt, often a device for moving an agent from shelter and stasis to a hunting forest and thence to a farther world (Turville-Petre 1974:3; Morris 1982:71), with a variant of Hunt text called the Forloyn (Kropp 1991:135-38). The Forloyn, narrative to H40, breaks spatial conditions; the Hunter chases an animal out of a hunting forest into another narrated action. To cross a physical border is to cross from one conventionalized narrative space to another coherent with it. Isolation (~H21) is the semological entry condition.

Ther was whilom a lordes Sone,
Which of his Pride a nyce wone [silly conviction]
Hath cawht, that worthi to his liche,
To sechen al the worldes riche, [kingdoms]
Ther was no womman forto love.

(ll.2275-9)

Pride in medieval thought is profoundly absurd; a contingent creature's claim to absolute value contradicts itself by definition. Narcissus defeats himself in every action of his story: deliberately exaggerating hunting prowess in H4 f40, he contradicts the conditions of the Hunt and puts himself in uncanny danger:

The grete hert anon was founde,
Which swifte feet sette vpon grounde,
And he with spore in horse side
Him hasteth faste forto ride
Til alle men be left behinde.

And as he rod, vnder a lynde
 Beside a roche, as I thee telle,
 He syh where sprong a lusty welle:
 (ll.2299-2306)

Wells in medieval tale are borders between the natural and the supernatural (Patch 1970:246-7): here the two realms are linked by the sight function (H8). To be alone in the Hunt is always to be lost and helpless - to cease to be a member of a Hunt is to cease to dominate a hunting forest, conventional space only for the conventional hunter. When Narcissus mistakes his own reflection for a woman, falls in love with it, and weeps for grace, his new humility is conventional; weeping and lonely self-torment structure noble Love narrative (Kropp 1991:184-5). But Narcissus' lamentations (ll.2321-39), reversed in their proper object, reverse Love, to the point of suicide.⁶ The flowers that grow from his grave become emblematic of this overturning of the conventional, that is, the coherent, in human behavior:

...men ensample take myhte
 Upon the dedes whiche he dede,
 As tho was sene in thilke stede;
 For in the wynter freysshe and faire
 The floures ben, which is contraire
 To kynde [Nature], and so was the folie
 Which fell of his Surquiderie. [pride, superbia]
 (ll.2352-58)

Narrative structure becomes emblematic meaning; the emblem is established through the narrative coherence of actions whose structures are made to reveal an identity of moral meaning. Gower's art lies in revealing a morally significant cosmos through the text structures of actions belonging to the poetic field in which he is working. The matrix of generic matrices, finally, is theist Creation.

5. Conclusion. The "building blocks" long recognized in ME verse narrative can be described as linguistic units, with results that extend literary understanding. In stratificational terms, these blocks are the realization of a constant semologic structure realized as a constant unit of text; in tagmemic terms, they are matrices of tagmemes, whose existence as units of text can be described under Pike's rubrics of particle, wave, and field. Although this paper has concentrated on a single text unit, the Hunt, the analysis suggests that the narrative poems in which it occurs can be approached as syntagmemic construction frames, and that, more distantly but no less concretely, ME aristocratic verse narrative as a generic field can be treated as a matrix within which the functional meaning of elements of narrative are defined.

AppendixA Semologic Model of the Poetic Hunt

H1.	The head of a noble household resolves to hunt.
<u>Entry Condition</u>	
H2.	Hunting produces joy.
<u>Function - Universal</u>	
H3.	A Master Hunter leads the hunt.
<u>Function - Universal</u>	
H4.	Hunting displays prowess.
<u>Function - Universal</u>	
H5.	The hunt prepares.
<u>Restricted</u>	H6 - H24
H6.	The Hunter chooses his game according to season.
<u>Coordinate</u>	H1
H7.	The sun rises.
<u>Restricted</u>	H8 - H26
H8.	The Hunter sees the event belonging to this slot.
<u>Function</u>	H7, H23, H32, H38, H39, H43, H46, H48, H54
Knit Line	
H9.	The day gives delight (H2 f8 f7).
<u>Restricted</u>	H10 - H26
Knit Line	
H10.	The Hunter gets out of bed.
<u>Narrative</u>	H1
H11.	The Hunter orders his horse.
<u>Restricted</u>	H12 - H15
H12.	The Hunter dresses.
<u>Narrative</u>	H10
H13.	The Hunter hears mass.
<u>Narrative</u>	H12
H14.	The Hunter eats a small amount.
<u>Narrative</u>	H13
H15.	The hunt couples the dogs.
<u>Restricted</u>	H18 - H23
H16.	The dogs bark in a voice characteristic of the event belonging to this slot.
<u>Function</u>	H15, H24, H28, H35, H36, H37, H39, H46, H47, H48, H51

H17.	The dogs display prowess.
<u>Function</u>	H16, H28, H35, H36, H37, H39, H46, H47, H48
H18.	The Hunter hears events belonging to this slot.
<u>Function</u>	H16, H25, H30, H38
Knit Line	
H19.	The Hunter mounts his horse.
<u>Narrative</u>	H14
H20.	The horse displays prowess.
<u>Function</u>	H19, H24, H40
H21.	The hunt forms a group.
<u>Function</u>	H19, H24, H46, H48, H50, H53
H22.	The Hunter assumes his equipment.
<u>Narrative</u>	H19
H23.	The hunt makes a glorious spectacle (H2 f8 f24).
<u>Restricted</u>	H24-H26
H24.	The hunt rides out from the castle.
<u>Narrative</u>	H22
H25.	The Hunter blows his horn.
<u>Function</u>	H24, H28, H35, H36, H38, H40, H46, H48, H49, H51, H53,
H26.	The hunt arrives in the forest.
<u>Narrative</u>	H24
H27.	The hunt takes up its stations.
<u>Narrative</u>	H26
H28.	The hunt seeks the trail.
<u>Coordinate</u>	H27
H29.	The Hunter encourages the dogs.
<u>Function</u>	H28, H35, H36, H39, H46, H51
H30.	The hunt makes a glorious noise (H2 f18 f[16+25]).
<u>Function</u>	H28, H35, H36, H39, H46, H48, H49
H31.	The landscape echoes the noise of the hunt.
<u>Function</u>	H30
H32.	The animal hears the hunt.
<u>Function</u>	H30, H36, H39
H33.	The animal displays characteristic prowess.
<u>Function</u>	H32, H36, H37, H38, H43, H46, H49, H50, H58
H34.	The animal seeks safety.
<u>Function</u>	H32, H36, H37, H38, H43, H46,
H35.	The hunt finds the trail.
<u>Narrative</u>	H28.
H36.	The hunt tracks the animal.
<u>Narrative</u>	H35

H37.	The hunt drives the animal from cover.
<u>Narrative</u>	H36
H38.	The animal runs.
<u>Narrative</u>	H37
H39.	The dogs course the animal.
<u>Coordinate</u>	H38
H(S)39.	The hunt drives the deer to low ground.
H40.	The hunt rides after the dogs.
<u>Coordinate</u>	H38
H41.	The hunt shouts.
<u>Function</u>	H40, H48, H49, H51,
H42.	The hunt releases a relay of dogs.
<u>Restricted</u>	H43-H45
H43.	The hunt shoots at the animal.
<u>Narrative</u>	H40
H44.	The hunt wounds the animal.
<u>Narrative</u>	H43
H45.	The sun sets.
<u>Restricted</u>	H46 - H56
H46.	The hunt brings the animal to bay.
H(S)46.	The hunt drives the deer to low ground.
<u>Narrative</u>	H40
H47.	The hunt brings the animal down.
<u>Narrative</u>	H46
H48.	The hunt kills the animal.
<u>Narrative</u>	H47
H49.	The Hunter takes his trophy.
<u>Restricted</u>	H50 - H52
H50.	The hunt breaks the animal.
<u>Narrative</u>	H48
H51.	The hunt rewards the dogs.
<u>Narrative</u>	H50
H52.	The hunt apportions the meat.
<u>Coordinate</u>	H51
H53.	The hunt rides homeward.
<u>Narrative</u>	H52
H54.	The hunt carries its booty home.
<u>Coordinate</u>	H53
H55.	The hunt arrives at the castle.
<u>Narrative</u>	H53
H56.	The hunt enters the hall.
<u>Narrative</u>	H55
H57.	The Hunter recounts the hunt.
<u>Restricted</u>	H58 - H61

H58.	The Hunter presents his prize to the presiding authority.
<u>Restricted</u> Knit Line	H59 - H61
H59.	The Hunter banquets.
<u>Narrative</u> Knit Line	H56
H60.	The Hunter drinks wine.
<u>Coordinate</u> Knit Line	H59
H61.	The Hunter goes to bed.
<u>Narrative</u> Knit Line	H59
H62.	The Hunter sleeps.
<u>Narrative</u>	H61.

Notes

1. Gerald Prince bases the "event" as unit of content (1973:17; 1982:passim) on the minimal narrative, adapted as "kernel narrative" (1982:83-88). Prince does not consider his event and the Labovian narrative clause as unit of content matched to unit of expression; instead he introduces the "episode:" "any group of conjoined events belonging to the same time sequence" (1973:45), confusing the concept of temporal juncture by applying it immediately to a level above the clause, and detaching it from its text-defining possibilities.

2. This approach detaches narrative not only from story, but from fiction, and from "literariness." Semologic structures may belong to real-world or to fictional expectation; temporal juncture is independent of the generic truth-values involved. Fictionality and literary function are relegated to a level of framing above the unit of narrated action.

3. Cohesion in systemic-functional theory is a semantic relationship between elements within text (Halliday and Hasan 1976:4, 8; see also Grimes 1975: 113); temporal juncture is both intra- and interstratal. Intrastratal ties alone cannot account for text, in that sequencing alone may lead to the presumption of text but cannot provide coherence (Brown and Yule 1983:197, 204). Gutwinski's definition of cohesion as "a manifestation of discourse structure on the morphologic stratum" (1976:40) fits the duality of a principle capable of varying functions on two strata simultaneously. For the term "coherence" he substitutes "cohesion" in a sense made possible when the property of "making sense" is found in the relationship of semology to morphosyntax.

4. A Hunt may be the first narrated action, but succeed other elements present in reference, exposition, or dialogue. An action on the semologic stratum can be realized in various discourse forms; it is not yet clear what shifts in text level are indicated.

5. Hence H26 as terminating H24, and H56 as terminating H53, may open and close Hunt text.

6. In general, the failure of unit closure produced by the Forloyn requires rectification; that is, failure to achieve closure generates further narrative until an event capable of overall closure is achieved, the formal means by which hunt text as initiating item thus generates the rest of the work lying in the textual functions of joy. Death, however, is the reversal from which there is no recovery, and hence no closure of the narrative unit (see also the Tale of Acteon in the Confessio, and Summer Sunday).

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A Description of Various Tone Systems

Eunice V. Pike

One of Kenneth L. Pike's books has been very important to me. It is *Tone Languages: A Technique for Determining the Number and Type of Pitch Contrasts in a Language, with Studies in Tonemic Substitution and Fusion*. 1948. Ann Arbor: University of Michigan Press.

Pages 48-53 describe how to assemble the data for beginning tone analysis. Pages 63-67 talk about the use of a frame. Pages 72-94 describe the tonomechanical changes in Mixtec. Pages 104-110 show how to line up the data for the analysis of person markers. Pages 111-19 show how to line up the data when analyzing tense and aspect.

I benefited not only from his book, but I watched as he analyzed the tone of a language, using those techniques. Without that help I probably never would have succeeded in analyzing the tones of a language, but with that help, I have analyzed, or co-analyzed the tones of more than a dozen languages.

A summary of the tone of some of those languages is as follows.

Villa Alta Zapotec of Mexico has three emic tones and a complicated tone sandhi system.

Mazahua of Mexico has both emic tone and an intonation system.

Eastern Popoloca of Mexico has four emic tones and two types of stress.

Acatlán Mixtec of Mexico has an upstepping terrace tone and in addition three of the usual tones.

In German of Burkina-Faso, West Africa, there is not only a contrast of high, low, upglide, and downglide, but also contrastive placement of stress, and contrast between syllables with a single vowel versus syllables with a cluster of vowels.

In Carrier of British Columbia, the words contrast by the placement of a sharp fall of tone.

Marinahua of Peru has allotones based on their occurrence in the phonological hierarchy.

A more detailed description follows.

Pike, Eunice V. 1948. Problems in Zapotec tone analysis. *IJAL* 14.3.161-70. Reprinted in *Studies in Tone and Intonation*, 1975. ed. Ruth M. Brend. Basel: S. Karger, pp. 84-99.

Zapotec has three tonemes: high 1, mid 2, and low 3. There is considerable tone sandhi.

Tone 3 is divided into classes. Class A morphemes cannot be perturbed. Class B morphemes are sometimes perturbed, sometimes not, depending in the environment in which they occur. Class C morphemes are suffixes. They are perturbed when the stems to which they are suffixed are perturbed.

Tone 2 is perturbed by what follows it, but it is usually

only the immediately preceding tone which is changed. A tone 1, however, causes a sequence of syllables with tone 2 to change.

A tone 1 is only rarely perturbed, and that occurs only when it is part of a compound.

There are also tone glides: 1-2, 1-3, 2-3, 2-1. Only the glides 1-2 and 2-3 occur on morphemes of one syllable.

Unless preceded by a tone 1, a tone 2 may be perturbed to tone 1 by any following syllable. That is, a tone 2 may be perturbed unless it is preceding zero, or unless it is immediately preceded by a tone 1.

Pike, Eunice V. 1951. Tonemic-intonemic correlation in Mazahua (Otomí). *IJAL* 17.1.37-41. Reprinted in *Studies in Tone and Intonation*. 1975. ed. Ruth M. Brend. Basel: S. Karger, pp. 100-07.

Mazahua has both a phonemic tone system and a phonemic intonation system. There are three tonemes: high, low, and falling. These make a difference in the meaning of words. For example: záphə 'gun', zəphə 'lake', hyərə 'ashes', hyārə 'sun'.

There is limited distribution in that the falling tone occurs only on the stressed syllable. Only high versus low tones occur on proclitics: ín-záphə 'your gun', ín-záphə 'my gun'.

The last syllable of the word pertains to intonation. There are high, mid, and low intonemes. (The mid intoneme is about the same height as the high tone. The high intoneme is considerably higher than that of the high tone.)

In the middle of a pause group, all words end with the mid intoneme. Prepause the different intonemes and different intoneme clusters signal different attitudes of the speaker. For example, when prepause, a mid-high glide signals surprise, a glide from mid to low signals anger, a glide from high to low is used when calling someone.

- thúsʔə¹ 'a cigar? (question)'
 cʔíngèrə² 'calves and...(sequence)'
 rà-ʂŋrə²⁻¹ 'tomorrow?! (surprise)'
 ʔyáhkə²⁻³ 'give it to me! (anger)'

Kalstrom, Marjorie R. and Eunice V. Pike. 1968. Stress in the phonological system of Eastern Popoloca. *Phonetica* 18.16-30.

In Eastern Popoloca there are two types of stress. In some words a lengthened vowel marks the stress, in other words a lengthened consonant marks the stress.

For example: $n\check{c}i^1s^{\cdot\tilde{e}2}$ 'clay pitcher' versus $n\check{c}i^1\check{s}e^1$ 'mesh bag', $tha^3k^{\cdot o1}$ 'early in the evening' versus $tha^{\cdot3}ko^3$ 'is teaching', $ci^1\check{c}i^2k^{\cdot a3}$ 'is jumping' versus $ko^2\check{c}i^1ka^1$ 'chicken'.

When the type of stress which lengthens a consonant falls on a syllable with a consonant cluster, only one of the consonants is lengthened. If there is an h in the cluster, it is the $/h/$ which is lengthened, $i^2h^{\cdot}ma$ 'beans'. If the stress falls on a syllable with a cluster made up of an $/n/$ followed by a stop or affricate, the $/n/$ is lengthened, $\check{s}i^4n^{\cdot}to^4$ 'wind'.

In some words a lengthened vowel marks the stressed syllable: $nte^{\cdot4}to^2$ 'tall', $n\check{c}i^{\cdot3}tha^3$ 'griddle', $nte^{\cdot3}so^3$ 'lime'.

There are four tones: 1, 2, 3, 4.

For example: $i^3h^{\cdot}ni^1$ 'eight', $i^3h^{\cdot}ni^3$ 'plate', $i^2h^{\cdot}ni^4$ 'blood', $che^1?ya^2$ 'not many', $thi^2?ya^2$ 'doesn't walk', $che^3?ya^2$ 'doesn't sing', $\check{s}a^4?ya^2$ 'it isn't work'.

Tone clusters may be monosyllabic: $na^4n^{\cdot a13}$ 'my mother', $h\check{a}o^{\cdot31}?y\check{a}^{\cdot23}$ 'I am not alone', $to^1t^{\cdot e41}th\check{a}^3$ 'her shawl'.

Some tone clusters may be dissyllabic: $ha^{\cdot i1}$ 'now', $\check{y}\check{o}^{\cdot32}o^2$ 'paper'.

Pike, Eunice V. and Kent Wistrand. 1974. Step-up terrace tone in Acatlán Mixtec (Mexico). *Advances in Tagmemics*. ed. Ruth M. Brend. Amsterdam: North-Holland Publishing Co. pp. 81-104.

The Acatlán dialect of Mixtec is interesting in that a sequence of syllables may have a step-up of tone. There is a contrast of tone: high, mid, and low tones, and there is also an additional tone, a 'step-up' tone. The step-up tone never occurs post pause. Its distribution is limited in that it follows only a high tone, or another step-up tone. In a sequence of step-up tones, each tone is a little higher than the preceding tone. The rise of pitch is not due to the attitude of the speaker, that is, it is not due to intonation.

There is considerable tone sandhi. For example, one class of morphemes with the tone sequences MM, HH, UH, becomes ML,

HL, UL, respectively, when preceding a certain class of morphemes. When post pause, some morphemes with a LL sequence may become MM, and some morphemes with a LH sequence may become MH. (For more tone sandhi rules, see pages 92-97.)

Examples of tone contrast follow. Stress is marked with an acute accent.

$yó^H?o^L$ 'twists', $yó^M?o^L$ 'rope', $yó^L?o^L$ 'will twist'
 $k^w\acute{a}^L?a^L$ $ká^Hte^H\tilde{n}á^L$ 'it will throw it around much'
 $k^w\acute{a}^L?a^L$ $ká^Hte^H\tilde{n}á^M$ 'she will dig much'
 $k^w\acute{a}^L?a^L$ $ká^Hte^H\tilde{n}á^H$ 'it will dig much'
 $k^w\acute{a}^L?a^L$ $k^w\acute{i}^Hko^H\tilde{n}á^U$ 'she will carry much'

Hürlimann, Ruth and Eunice V. Pike. 1985. A note on tone and stress in German. *Journal of West African Languages* 15.2. 56-60.

The German language is interesting in that there is not only contrast in the placement of stress, but there is also contrast of high, low, downglide, and upglide tone. There is also a contrast of syllables with single vowels versus syllables with two vowels.

Contrast of tone: 'čáǵnǎ́ 'rice field, pl.' 'yòǵmǎ́
 'tree', kôǵró 'clan of karama', 'kôǵmǎ́ 'fear'.

Stress usually occurs on the next to the last syllable: jí'jàlè 'corn, sg.', or on the syllable with a vowel cluster, 'káálúǵá 'tear', ká'lááǵú 'pottery'. There are, however, exceptions to that rule: 'kónkòrtièǵò 'a saviour'.

There is a contrast of a single vowel versus a syllable with two vowels as in: 'dánǎ́ 'wood, pl.' versus 'dáǵǵù 'wood, sg.'

Pike, Eunice V. 1986. Tone contrasts in Central Carrier (Athapaskan). *IJAL* 52.4, 411-18.

Carrier is interesting in the way words contrast by the placement of a sharp fall of tone. Some words have a sharp fall of tone between syllables. Some words have no fall, but end in high tone. Words differ by the place in the word where the fall occurs.

The syllable immediately preceding the fall of pitch has been marked with an acute accent.

dábe 'goat', yatúba 'ocean shore', neké 'our foot',
két'etl'u 'stocking'

In certain environments, some words have only low tone.

Syllables with voiced continuants or with voiceless unaspirated stops, have a lower pitch than syllables with voiceless aspirated stops or with glottalized stops. That is, in the following examples, the second syllables are higher in pitch than the contiguous syllables.

dəcəndəlt'ó 'woodpecker', nekelasc'óh 'our little toe'.

Pike, Eunice and Eugene Scott. 1962. The phonological hierarchy of Marinahua. *Phonetica* 8.1-8. Reprinted in *Studies in Tone and Intonation*, 1975. ed. Ruth M. Brend. Basel: S. Karger, pp. 196-203.

Marinahua of Peru has a contrast of high versus low tone. The allotones are determined, for the most part, by their occurrence in the phonological hierarchy, and by contiguous tones. High tones have their highest allotones when they occur in the nucleus of the phonological clause. That is, when they are part of the stressed syllable of the final word of the phonological clause. Low tone has the lowest allotone in that environment.

The next highest allotone of high occurs in the stressed syllable of a word which is not in the nucleus of the clause. That is, it occurs in the stressed syllable of a word which is not the final one of the phonological clause.

In the following examples, the nucleus of the phonological clause is marked with two dots. A stressed syllable which is not in the nucleus of the phonological clause is marked with one dot. High tone is marked with an acute accent. Low tone is not marked.

fí'ní čá'ska fí:a 'the husband bought achiote'

In summary, the tone systems of the above languages are very different, but they all responded to the same system of analysis. The different tone systems became apparent with the use of frames, with making a different list of words for each different sequence of tone, and with lining up the data in such a way as to be alert to tonomechanical changes. In all of this the book *Tone Languages*, by Kenneth L. Pike, was very helpful.

ANALYZING A HORTATORY TEXT WITH SPECIAL ATTENTION TO PARTICLE, WAVE, AND FIELD

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Kenneth L. Pike's (1959, 1967, 1982) view on language as particle, wave, and field has been highly influential to those who realize that a linguistic unit does not exist in isolation. A unit exists in a context (hence, a "tagmeme" is a unit-in-context), creating fuzzy and indefinite boundaries but each part still contributing to the coherence of the whole. A stream of speech may be studied from different perspectives: a unit in and of itself apart from context (particle), as overlapping with other elements on the borders (wave), and as relating in a network of a system (field).

The purpose of this paper is twofold: to present an analysis of a hortatory text, especially at the discourse and paragraph levels, and to illustrate the different observer perspectives in the analysis. This paper shows how parts are organized to formulate the text in its hortatory schema at the discourse level. The paragraph analysis of the text shows the clumping of the sentences and paragraphs into larger units functioning as a unit at the higher, discourse level. This analysis largely assumes a particle perspective to discern the ways sentences and paragraphs function in the text. However, the analysis of overlapping borders and portmanteau units reflects the wave perspective. The field perspective is shown in the systematic use of expository material--with a hortatory overtone--to expound the problem. Field perspective is also shown in the organization of the text, where the schematic units are often connected in a network in multiple ways, and other devices for cohesion and coherence.

1. The Hortatory Schema

Discourse analysis has been applied more frequently to narratives than any other type, perhaps because it is a cultural universal and there is something fundamental about storytelling in human communication. Hortatory discourse, although less well studied, is also a cultural universal and basic to our daily activities (Longacre 1983). It is hard to imagine a culture or a family in which an elder or an experienced person does not give some advice to the young, however covert, mitigated, or disguised it may be. In fact, it is well known that many stories--especially folktales--are told to transmit values that are important to a cultural group. In this sense, we might argue that hortatory discourse is more basic to human communication than narrative, at least in terms of the notional intent of a speaker. Seen from surface structure, however, hortatory types would be fewer in number than narratives; nobody likes to be told to change their values, beliefs, and behaviors. We like to hear more entertaining, amusing stories of other person's experiences than to listen to admonitions and advices.

Narrative discourse might be the primary mode of human communication in terms of frequency in surface structure, while the hortatory type is primary in terms of the communicator's intent in notional structure. This "dual primacy" is due to human nature and can be considered to be a case of skewing between surface and notional discourse types, e.g., a notional hortatory text can be presented in surface structure as a narrative text. Besides narrative and hortatory, procedural and expository discourse types also play a role in skewing discourse types between notional intent and surface form (Longacre 1983). In calling for an action, procedural discourse might be similar to hortatory, but the intent is clearly different (Lowe 1986). The intent of a procedural type is on HOW (to follow a procedure), while that of a hortatory is on WHY (one should behave a certain way). There may also be an embedding of one type within another, e.g., an explanation of a product (an expository discourse) within a hortatory sales discourse.

Various schemata have been proposed for narrative discourse, e.g., exposition, inciting moment, developing conflict, climax, denouement, and conclusion (Longacre 1983); or setting, event, and reaction (internal and overt responses) (Rumelhart 1975). What are the analogues in a hortatory text? Lowe (1986) says that a hortatory discourse has three types of information: exhortational, motivational, and credential. Tuggy (1991) proposes as a hortatory schema: change, evidence(n), resistance-persuade, and appeal. Longacre (in press:3) presents four typical "slots" of a hortatory text: "(1) establishment of the authority/credibility of the text producer; (2) presentation of a problem/situation; (3) issuing of one or more commands, which can be mitigated to suggestions of varying urgency; and (4) resort to motivation (essentially threats with predictions of undesirable results, and promises along with predictions of desirable results)." What is essential for hortatory is exhortation (command or appeal). The other slots like authority, problem, and motivation are usually there, or at least implied, for the command to make sense and be persuasive.

2. The Schema of a Korean Hortatory Text

For this paper I have chosen to analyze a short Korean text called *Il-ha-nun Salam* (work-RelCI person) "The Working Person." The text was written by Rev. Kyung-Jik Han, a well-known preacher who established one of the largest (presbyterian) churches in Korea, and it was published as a column article called "The Way" in *Hankook Ilpo* (Korea Daily Times) on March 12, 1985.

The text compares diligent workers, who are devoted to their work and feel satisfaction with it, and sluggards, who are full of complaints and dissatisfaction, thus making work for others. Although sluggards are in the minority, they make much noise and create disturbances. There should be more "working people" and less "work-making people" for the country to do well and for people to feel satisfaction with their lives. The last sentence of the text quotes 2 Thessalonians 3:11-12 of the New Testament.

I will now present the text as a "literal" English translation. Whenever possible, I have tried to reflect the linguistic structure of the Korean text. The first word in each Korean sentence appears in capital letters (in S25 the word *nä* 'I' occurs first in the sentence). The implied information is in parentheses, which is not in the original text but needed for English.

The Working Person

- 1 (They) say that in ANY organization or society (there) are generally two kinds of people.
- 2 ONE is people who work and the other is people who make work.
- 3 People who belong to the FORMER are generally quiet.
- 4 To MY (=their) work (they) completely devote (their) mind and body.
- 5 (They) do not meddle with OTHER's work.
- 6 To fulfill (their) OWN assumed responsibility (they) pour energy (into work).
- 7 ALSO in the work itself (they) feel satisfaction.
- 8 THAT IS, through the work (they) feel happiness and taste the value of life.
- 9 BUT people of a different kind are exactly the opposite from the former.
- 10 COMMONLY, (they) are talkative.
- 11 (They) like to meddle with OTHER's work.
- 12 If (things) do not fit (their) own minds even A LITTLE, (they) complain right away.
- 13 In (their) OWN work (they) cannot feel satisfaction.
- 14 ESPECIALLY, if the work does not come out well, (they) think that the responsibility lies not with (them)selves but with others.
- 15 THEREFORE, always (they) are full of complaints and dissatisfaction inside.
- 16 SO, (they) are bound to make work.
- 17 (They) make the atmosphere such that (it) would be difficult for OTHERS to work also.
- 18 What is THANKFUL is, (I) regard that the number of this kind of people is not high.
- 19 (They) are the MINORITY.
- 20 BUT (they) make big noises.
- 21 SOMETIMES, (they) even come out to the street running.
- 22 In order for the COUNTRY to do well, there is no need to say twice as to which kind of people (there) should be more.
- 23 (There) should be many people who WORK.
- 24 The WORLD is not perfect.
- 25 The society in which I live, the place where I work, or the country to which I belong is not perfect, either.
- 26 BUT these (people) who are devoted to the work no matter what workplace I am (=they are), feel the value of life.
- 27 The BIBLE advises:
- 28 "WE hear that among you (there) are fellows who act without plans, who do not work but only make work; (we) exhort this kind of fellow ... (to) work in quietness and eat their own food" (2 Thessalonians 3:11-12).

The first seventeen sentences (more than half of the text) present and compare two types of people, working people and those who make work. Sentences 18-21 describe the second group as being the minority and yet make noise and disturbances.

Although it is obvious to the reader which group the writer approves of, there is no overt hortative sentence up through S21. The surface structure is entirely expository. Sentences 22 and 23 contain the first overt indications

that this text is hortatory, with verbs having a deontic modal 'should' (in S22 it occurs in the embedded complement clause functioning as the topic). These sentences say that there should be more people who work than who make work in order for the country to do well. The expository form is resumed in S24-26, which says that although the world is not perfect, those who are devoted to their work know the value of life. The last two sentences lead us to the Biblical passage, which overtly gives a command in the imperative mode. The imperative is embedded in the verb *ha* 'do, say', used to mean 'exhort' or 'urge': '(we) exhort this kind of fellow ... (to) work in quietness and eat their own food.' Sentence 28 contains the only imperative in the text, a direct quotation from the Bible.

What slots of the hortatory schema can we posit for this text? I view S1-17 as presenting the situation. These sentences tell us about the two types of people. It is an embedded expository discourse, but full of evaluative words strongly suggesting its hortatory intent: devotion to work, responsibility, satisfaction, happiness, and value of life for the working group; and complaints and dissatisfaction, thus making work for others, for the second group.

The next four sentences (S18-21), placed between the situation and the motivation slots, are best described by the wave characteristic of language. They seem to belong with S1-17, or more specifically with S9-17 which describe the work-making group, commenting that although small in number they are noisy activists. These sentences speak of their number and of certain characteristics not mentioned for the first group. Notice that S22-23 also relate to numbers: 'there should be more working people'. It is at S22-23 that the text finally turns to the working people after a lengthy description in S9-21 of the work-making people. Conceivably, there are three choices in our analysis: (1) S18-21 may form a separate unit called the problem slot; (2) they may belong with the first slot, situation; or (3) they may belong with the motivation slot. Although there is a semantic coherence regarding the quantity, I reject (3) in that these sentences do not give motivation to work and that there is a shift in participants from work-making people to working people. Options (1) and (2) may be both valid, but I have chosen (2) as the most plausible, since S9-17 already present the problem in describing work-making people and since S18-21 merge into the situation slot (S1-17), creating a portmanteau unit, i.e., situation-problem. These four sentences (S18-21) clearly manifest the wave characteristic of language, having something in common with the previous situation unit and the following motivation unit.

The motivation is given in S22-26, with two specific motivational points to work hard: 'in order for the country to do well' in the first part, and 'to feel the value of life' in the second part. From the point of view of participant reference, the text displays a chiasmic structure of ABB'A': working people (S3-8), work-making people (S9-17), problem created by work-making people (S18-21), and motivation for working people (S22-26).

The last two sentences provide the overt command by way of a Biblical passage. To be specific, S28 gives the command (to work and eat) and S27 is giving the authority (the Bible). I think there are several sources that contribute to the authority or credibility of this text: (1) the Biblical quote, considered as directly addressing the problem at hand, (2) the author of the

text, Rev. Han, who is very well known to both the Christian and non-Christian audiences and who is one of the regular columnists, and (3) the medium of the message, i.e., (probably) a prestigious column in a widely circulated newspaper within the country. While (2) and (3) are indirect means of authority requiring the reader to have encyclopedic knowledge regarding the author and the newspaper, (1) is part of the text. Of course, the word Bible also demands knowledge and experience outside the text itself. But S28, the longest sentence in the text, directly comes from the Bible with a specific reference to its source. The author tells the reader that his message is valid and authoritative (hence should be followed) because even the Bible teaches the very same concept. In some sense, the sentence also functions as the conclusion of the text, succinctly capturing the heart of the message in one sentence. We might say, therefore, that the last two sentences, as a unit, have the double function of filling both command and authority slots in the hortatory schema, again reflecting the wave characteristic.

These slots, however, when matched with individual sentences, do not give us a balanced distribution of chunks of text. That is, the situation-problem slot forms the bulk of the text (twenty one sentences), with only five sentences for motivation, and two for both command and authority. I think the distribution of the slots would be text specific and perhaps topic specific; some texts and topics might require a large proportion of commands, giving general and specific ones depending on situation. In summary, the text may be analyzed as follows at the schema level (as shown in the left column):

Situation-Problem: S 1-21
Motivation: S22-26
Command-Authority: S27-28

Situation: S 1-17
Problem: S18-21
Motivation: S22-26
Authority: S27
Command: S28

The analysis given in the right column would be chosen if one wants to avoid portmanteau units and assume particle perspective only. In addition to particle (schema level slots) and wave (especially at the borders of slots and overlapping of units), field perspective can be seen in the use of expository material, which has a hortatory overtone, in the presentation of the situation-problem, as well as in conjunctions connecting clauses, sentences, paragraphs together in the text, and the very fact that the schema slots develop the same theme of promoting diligent workers.

3. Nouns and Verbs

What kinds of nouns, pronouns, and verbs contribute to our text? Noun phrases here primarily refer to two groups of participants with an evaluative outlook. Unlike narrative, however, the participants here are rather generic; they do not refer to specific real-world people, but general types of people, namely, working people and work-making people. After an introductory phrase 'two kinds of people' (S1), the first group is introduced as *il-ha-nun salam-tul* (work-RelCl person-Pl) 'working people' (lit. people who work) with a relative clause. In S3, the group is referred to as 'the people who belong to the former', then by zero anaphora in S4-8 describing the characteristics of the working people. Then in S23 the

reference is in singular form *il.ha-nun salam* (which is used also as the title of the text), and then in S26 with a long relative clause: 'these (people) who are devoted to the work no matter what workplace I am (=they are)', in which the head of the noun phrase is *i-tul*, 'this-Plural Suffix'. The forms of participant reference, whether identical or paraphrastic in form, are highly cohesive, thus showing the field view of language. It is important to realize that the zero anaphora is even more cohesive than the lexical repetition of *salam* 'person'. The lack of explicit subjects in these clauses and sentences (S4-8) is due to their close relationship to each other (as subjects of clauses within the same paragraph, with no intervening material), i.e., the identity of subjects is so obvious in Korean that they are deleted.

The second group is introduced as *il-ul mantu-nun salam-tul* (work-Accusative make-RelCl person-Pl) 'people who make work' (S2), then contrasted with the first group starting with S9 as 'people of a different kind'. Again, in a series of sentences (S10-17) reference to them is by zero, i.e., by equi-NP deletion across sentences as well as clauses. In S18, where the topic shifts from describing them to quantifying them, they are referred to as 'this kind of people', followed again by zero in S19-21 in the same paragraph. Finally, in the Bible passage (S28), expressions like 'fellows who act without plans, who do not work but only make work' and 'this kind of fellow' occur. For both groups, the NP with a relative clause and a head (most commonly, 'person') is the most common form of reference.

Although pronouns are, in general, used sparingly in Korean, this text has *nä* (first person singular pronoun), and reflexive *jaki* 'self or own'. The *nä* is used only for the working group ('my' in S4, 'I' three times in S25 and once in S26). In the English translation of *nä* in S4 and S26, I have added in parentheses 'their' and 'they', respectively. Reflexive *jaki* is used once with the working group (S6) and three times with the other group (S12, 13, 14). The five occurrences of the first person singular pronoun used exclusively with the working group seem to reveal clearly the group with which the author wants his readers to identify and to emulate. On the other hand, *jaki* 'self', without preceding personal pronouns to make 'myself' or 'himself', is detached. Notice also that 'I' occurs four times in the motivation slot, in which the arguments in the text reach a cumulative, climactic point. This might be described as a shift up in person in the agency hierarchy, analogous to one of the narrative peak features for heightened vividness (Longacre 1983).

The word *nam* 'other' occurs once in a negative sentence with the working group (S5 'not meddle with other's work'), but three times with the work-making group (S11 'meddle with other's work', S14 'responsibility lies ... with others', and S17 'difficult for others to work'), giving them a negative connotation. There are numerous references to the topic *il* 'work' with both groups, often in the form of participant reference. References to an individual and his or her surroundings are made as follows, clearly reflecting the place of an individual in a social network extending to the whole world (field perspective):

<i>nä</i>	< <i>salam-tul</i>	< <i>jikjang</i>	< <i>tanjhe</i>	< <i>sahwe</i>	< <i>nala</i>	< <i>sesang</i>
I	person-Pl	workplace	organization	society	country	world

While all nominal references pertain to an individual or a group (particle perspective), people have the potential to change or influence others as urged in this text (wave), in a network of relations (field).

Verbs are central to a clause, controlling the types of nouns that can occur together in the clause, and are typically inflected for tense, aspect, or mode. The analysis of verb or clause types in narrative (both in transitivity on the surface and case frame in notional structure) proved to be crucial in determining storyline (foreground) vs. supportive (background) information. In narrative, highly transitive action or action-process verbs in past tense typically encode foreground information, while in a hortatory text, modal forms, such as imperative or jussive, reveal the mainline of exhortation. The consideration of tense and aspect or action vs. state verbs seems secondary.

As an SOV language, Korean verbs typically mark the end of a clause. The following table on the next page provides an abstraction of the text, focusing on sentence introducers (conjunctions and adverbs), nonfinal (medial) verbs, and final verbs in sentences. Three nonfinal verbs in this text have negatives (once before the verb stem), and all eight nonfinal verbs have suffixal conjunctions that indicate a semantic relationship of that clause with the following one. Final verbs are marked for sentence-final modes, all of which are declarative (D or Decl) here. All verbs are unmarked for tense, which means nonpast in Korean, both in nonfinal and final clauses. While the copula *i* and predicate adjectives for states ('be.full') and existence or quantity ('not.exist' or 'be.few') are directly followed by the declarative mode, other verbs have the suffix *-n* or *-nun* which is here labeled the activitive mode (A or Act).²

The table does not include verbs in embedded (relative or complement) clauses, but some verbs are in brackets when the following main verb is quotative (S1 '(they) say', S18 '(I) see, regard') or modal (S23 *man-aya.ha* 'be.many-Obligation'). While every sentence ends in the declarative mode in this text, the Biblical quote in S28 is unique in several ways. It does not contain the usual--plain speech level--declarative mode ending *-ta*, but the declarative ending of high-to-low speech level *-nola*, after the quotative verb *ha* 'do, say', urging the reader to work in quietness and eat own food (the last two verbs are shown in the table in brackets). It also contains the only imperative (Imp) in the text, which has within its domain two verbs: *il.ha-yo* ... *mok-ula* (work-so ... eat-Imp). The nonfinal deontic modal for obligation ('should') occurs twice in this text: in S22 within the complement clause functioning as the topic, and in S23 in the main clause '(There) should be many people who work'. Although the hortatory intent of the author is unmistakably clear throughout the text even in the expository section, there is only one explicit imperative mode with quotative verb, and two deontic modals in the text.

The activitive mode occurs seventeen times, all in final verbs, while ten final verbs (state or existential) occur without it. The peculiar speech level used in the Bible quoted in S28 is responsible for the verb not carrying the activitive mode. Perhaps it is noteworthy that negatives (two of them in conditional clauses) occur more predominantly in the paragraph describing the work-making people.

Introducer (Conj, Adv)	Nonfinal-Neg-Conj Verb	Final-Aspect-Neg Verb Mode	-Act-Decl -Imp
1		[exist-D] do, say	-A-D
2		be	-D
3		be.few	-D
4		devote	-A-D
5		meddle -Neg	-A-D
6	fulfill-ki.wihayø'to'	pour	-A-D
7 tto'also'		feel	-A-D
8. kot'that.is'	go.through-yø'so' feel -ko'and'	taste	-A-D
9 kuløna'but'		be	-D
10 hunhi'commonly'		be.many	-D
11		like	-A-D
12	fit -Neg-myøn'if'	throw.up	-A-D
13		feel -Neg	-A-D
14	Neg-become-myøn'if' exist -Neg-ko'and'	think	-A-D
15 kulømulo'therefore'		be.full	-D
16 kuløni'so'		be	-D
17		make -Compl	-A-D
18		[be.many-Neg-D] see	-A-D
19		be	-D
20 kuløna'but'		make.noise	-A-D
21 ttälo-nun'sometimes'		do	-A-D
22		not.exist	-D
23		[be.many-Oblig] do	-A-D
24		be.perfect -Neg	-D
25		be.perfect -Neg	-D
26 kuløna'but'		feel	-A-D
27		advise	-A-D
28	[exist-D] do-ni'thus' [work -yø'so'	eat-Imp] do, say	-D

4. Cohesion and Coherence

The linguistic features discussed in section 3 regarding nominal and verbal forms are highly cohesive. In this section, I deal with explicit cohesive devices like conjunctions and lexical ties, and implicit associations and paraphrases that contribute to coherence. Although a distinction can be made between surface cohesion and notional coherence, as above, the boundary is rather fuzzy (which is a wave feature not of the text but of our analysis or theory). For example, there may or may not be a conjunction in the surface structure across sentence boundaries; regardless, however, there is some sort

of semantic relationship between adjacent sentences (cf. section 5). The cohesive features best reflect the field view of language, connecting parts of the text systematically as a whole. All three views, however, may be seen in a given feature. A conjunction, for example, is a word (particle), connecting sentences together (wave) in a network of relationships in a text (field).

The introducer column in the table above shows that the text has three conjunctions (*kulona* 'but' three times, *kulomulo* 'therefore' once, and *kuloni* 'so' once) and four adverbs. These conjunctions bind sentences and paragraphs together. The antithetical conjunction *kulona* 'but' in S9 is used to contrast two groups of people at the paragraph level (S3-8 and S9-17), while the same conjunction in S26 encodes concession or counter-expectation between S24-25 and S26: although the world and society are not perfect, working people know the value of life. The scope of the conjunction *kulona* 'but' may differ, then, depending on the context. It may mark a single sentence or a series of sentences in a paragraph. Sentence-initial adverbs are also highly cohesive: additive *tto* 'also', paraphrase *kot* 'that is', temporal-frequentative *hunhi* 'commonly', and *ttälonun* 'sometimes'. No backreferencing (recapitulating) clauses are used at the beginning of the sentences in this text.

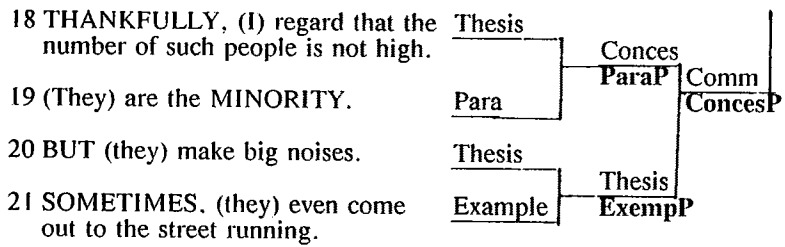
Sentence-medial conjunctions, which are attached to the verb in Korean, connect the clauses within the scope of the given sentence. Within this text there are some conjunctions that are subordinate or adverbial in function; others are coordinate dependent.

Lexical repetition relating to participants and to concepts like 'work' has been mentioned in the noun section. We also find groups of words which relate to the same semantic fields. Words relating to the kinds of people (two kinds, the former, different kind, this kind, and which kind) occur at the beginning of divisions or paragraphs in the text. There are also positive words associated with working people: quiet, devoted, responsible, pouring energy into work, satisfaction, happiness, value of life. In contrast, words with negative connotation are used for the other group of people: talkative, meddling, complaining, dissatisfied, making work, and making it difficult for others to work. Paraphrases of sentences are abundantly used in this text.

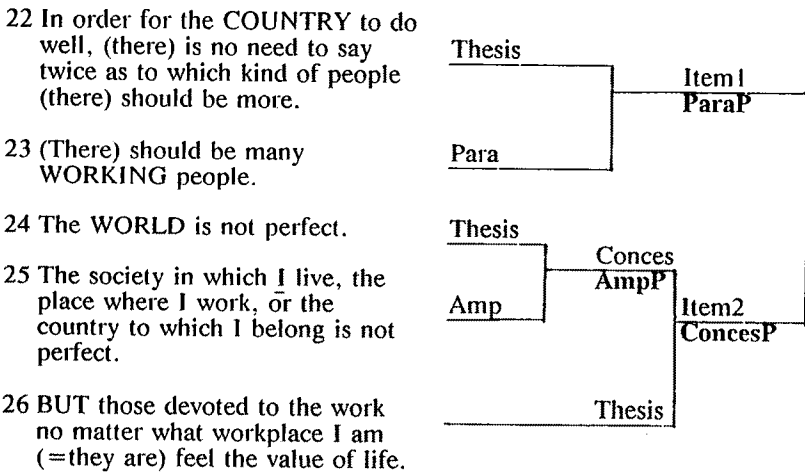
5. Paragraph analysis of the text

Based on the analyses done so far on the schema, participant reference (nouns), verb features, and cohesion and coherence, we are now ready to see how the sentences (or clusters of sentences that function as embedded paragraphs) within each slot are connected to each other. At the schema level, we chunk the text into larger units that correspond with particular slots characterizing the hortatory discourse. At the paragraph level, on the other hand, we focus on internal relationships within each slot. The assumption is that sentences are not organized in a simple linear fashion but clump together, forming mid-range structures between the sentence and discourse.⁷

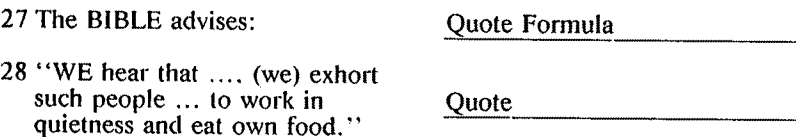
The paragraph structures of S1-21, S22-26, and S27-28 are shown below in a tree diagram. Slots (such as Thesis and Identification) are shown above the line, and classes (paragraph types such as **Identification Paragraph**) below the line in boldface.



MOTIVATION: (Hortatory) Coordinate Paragraph



COMMAND-AUTHORITY: (Hortatory) Quote Paragraph



- | | |
|---------------------------|------------------------|
| Note: Amp = Amplification | Ident = Identification |
| Comm = Comment | Intro = Introduction |
| Conces = Concession | OppTh = Opposed Thesis |
| Coor = Coordinate | P = Paragraph |
| Exemp = Exemplification | Para = Paraphrase |

The first two sentences in the text provide an introduction to the situation-problem slot as well as to the text, again displaying a wave characteristic of language in having one item performing a double function.

Sentence 1 introduces two kinds of people, and S2 identifies who they are; thus they form an Identification paragraph as Thesis and Identification, respectively.

Referring to the first kind of people as 'the former', S3-8 are exclusively devoted to describing working people in terms of their three characteristics: being quiet, being dedicated to work, and feeling the satisfaction and value of life. Different quantities of sentences are used to describe each item in this Coordinate paragraph: S3 for Item 1, S4-6 for Item 2, and S7-8 for Item 3. When there is more than one sentence within each item, we try to discern their internal relationship. Looking at Item 2, we see that S5 might be called a negated-antonym paraphrase of S4 since devoting all your mind and body to your own work means that you do not meddle with someone else's work. Sentence 6 further amplifies the idea, adding comments on responsibility. Thus Item 2 has two layers of embedding: first an Amplification paragraph, whose Thesis is filled by a Paraphrase paragraph (with S4 as Thesis and S5 as Paraphrase in this second layer of embedding) and Amplification by S6. Sentences 7 and 8 are marked to be in paraphrase relationship by *kot* 'that is': S7 is Thesis and S8 is Paraphrase. Together they function as Item 3, as indicated by *tto* 'also'.

The antithetical conjunction *kulona* 'but' in S9 contrasts two kinds of people; in fact, the scope of this conjunction is very broad: S3-8 contrasting with S9-17 or even to S21. The overall paragraph type is Antithetical, with Introduction (S1-2), Thesis (S3-8), and Opposed Thesis (S9-21).

Following the conjunction, S9 says 'people of a different kind are exactly the opposite from the former', clearly functioning as Introduction. A Coordinate paragraph (S9-15) functions as Reason, and a Paraphrase paragraph (S16-17) as Thesis. Items 1 and 2 in the Coordinate paragraph are each filled by a sentence (S10 and S11 respectively), but Item 3 displays a considerable degree of complexity with several layers of embedding. Sentences 12, 13, and 14 each form an Item in the embedded Coordinate paragraph, which is Reason for the (result) Thesis given in S15. The reason-result relation is clearly shown by the initial conjunction 'therefore' and the lexical repetitions in S15 of complaints and dissatisfaction listed in S12 and 13. The semantic contrast of this group to the first group is complete with S15. There is an additional Thesis in S16-17, resulting from the characteristics given in Reason (S10-15).

Regarding S18-21, we have already noted the fuzzy, overlapping wave feature with both the preceding and the following sections, but concluded that they belong more closely with the preceding, forming the situation-problem slot. Sentence 18 starts with the author's comment, 'what is thankful', which is further confirmed by the main verb *po* 'see', used to mean 'regard' or 'think'. Furthermore, there is a proximate form of participant reference, *ilo-n yu-uy salam* 'this type of person', referring to the work-making people. Based on these clues, I have chosen to regard this section as Comment to Thesis (S9-17). Internally, S18-19 (which forms a Paraphrase paragraph) function as Concession, and S20-21 (with S21 as Exemple to Thesis in S20) function as Thesis. Similar to English, the same antithetical conjunction *kulona* 'but' encodes a concession notion here, while in S9 it encodes a contrast notion.

A Paraphrase paragraph (S22-23) functions as Item 1: 'there should be more working people for the country to do well'. The conjunction *kulona* 'but' in S26 connects S24-25 as Concession to Thesis in S26, together functioning as Item 2: 'although the world is not perfect, those who are devoted to their work feel the value of life'. Sentence 25 is Amplification of S24, adding more information; also there is a parallelism in structure in the repetition of the verb. Thus, Items 1 and 2 in a Coordinate paragraph are presented as motivation to work hard.

The two sentences in the command-authority slot are simply connected as Quote Formula (S27) and Quote (S28), within a Quote paragraph.

Paragraph analysis is carried out focusing mainly on linguistic cues in the surface structure of the text, but the notional, logical relationship among sentences also provides clues to identifying paragraph internal structures. For example, the same conjunction 'but' on the surface indicates either a notional contrast or a concession relationship. The paragraph in a tree structure or slot-class indentation structure primarily shows the particle view, while portmanteau units and overlapping units represent the wave view. Devices used for cohesion and coherence, such as conjunctions, nominal chains of participant reference, verb types with tense, aspect, and mode, and paraphrases best reflect the field view.

6. Conclusion

Hortatory discourse, with its notional intent to change readers' beliefs and behaviors, has a schema unique to its type: situation, problem, command (whether overt or mitigated), motivation, and authority. There may be a variation in the ordering of these slots in the schema, but situation and problem would usually occur first.

I have analyzed a Korean hortatory text at schema (discourse) and paragraph levels, noting some features of nouns and verbs and of cohesion and coherence. At almost every level and in every aspect, a linguistic unit may be seen from particle, wave, and field perspectives. In the course of this analysis, I have tried to present different perspectives when relevant. These multiple perspectives enrich our points of view and enable us not to be dogmatic concerning whether there is only one "correct" view of language data.

Notes

1. Fred Lukoff's (1945-47) romanization system is adopted in the transcription of the Korean language data.
2. This suffix is described by some linguists as the present tense with limited distribution, i.e., used only for verbs (never for adjectives or copula) in the plain speech level. See Hwang (1987, chapter 4) for discussion.
3. See Longacre (1979, 1980), Pike and Pike (1982), Hwang (1989), and E.G. Pike (in press) for paragraph types and theoretical discussion of the paragraph and its recursive characteristic. Others have developed categories to capture similar mid-range grammatical and semantic units, e.g., Beekman, Callow, and Kopesec (1981), van Dijk (1977), and Mann and Thompson (1986, 1989).

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THE HIGHER LEVELS OF GRAMMATICAL STRUCTURE OF A POEM AND ITS RELATION TO THE GREATER LEXICON

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0.1 The Grammatical Class of the Poem

The poem "Software" by Kenneth L. Pike 1986, the subject of this paper, is an example of the grammatical class: expository poetic monolog. The poem is expository according to the classification of discourse types of Longacre 1983.3, in that it exhibits no contingent temporal succession, nor is it agent oriented. These are the two major characteristics of expository discourses in contrast to narrative, procedural, and hortatory discourses.

"Software"

Going is tough
Designing it all.
"Soft?" "No, hard
To do that job."

Paradoxes are seen
When we preen
Our feathers
For wings to fly
In sky above
The ancient ground.

It is grammatically poetic, first of all, because of the grammatical parallelisms it exhibits. It is assumed, here, that parallelism is a major characteristic which distinguishes poetry from prose. Another distinguishing characteristic is the use of forms which allow readers to supply their own interpretation of grammatical structure--an implicational feature of poetry. The more relevant such ambiguities and parallelisms are in a given context, the richer and more powerful is the poem. The grammatical parallelisms and implicational features in this text are fewer and somewhat less relevant than are the parallelisms and implicational ambiguities in the phonological and referential structures which are discussed elsewhere. Another poetic feature as cited by Ciardi 1959.671 is that the "movement *from the specific to*

the general is one of the basic formulas of poetry." This is illustrated in the present text.

0.2 The Model Used for Analysis

The analysis of the poem follows the tagmemic model, thus each stream of speech is considered to be structured phonologically, grammatically, and referentially (what the speech is talking about including its cultural setting). These structures are each a part-whole hierarchy, made up of units which exhibit four features: CLASS: substance, paradigmatic characteristics; SLOT: place of occurrence within the immediately larger structure, syntagmatic characteristics; ROLE: function within the including structure, pragmatic characteristics; and COHESION: occurrence and agreement constraints with any other unit in the text, systemic characteristics. Since each unit includes something of its relation to its context, it is a unit-in-context, the TAGMEME.

0.3 The Greater Lexicon

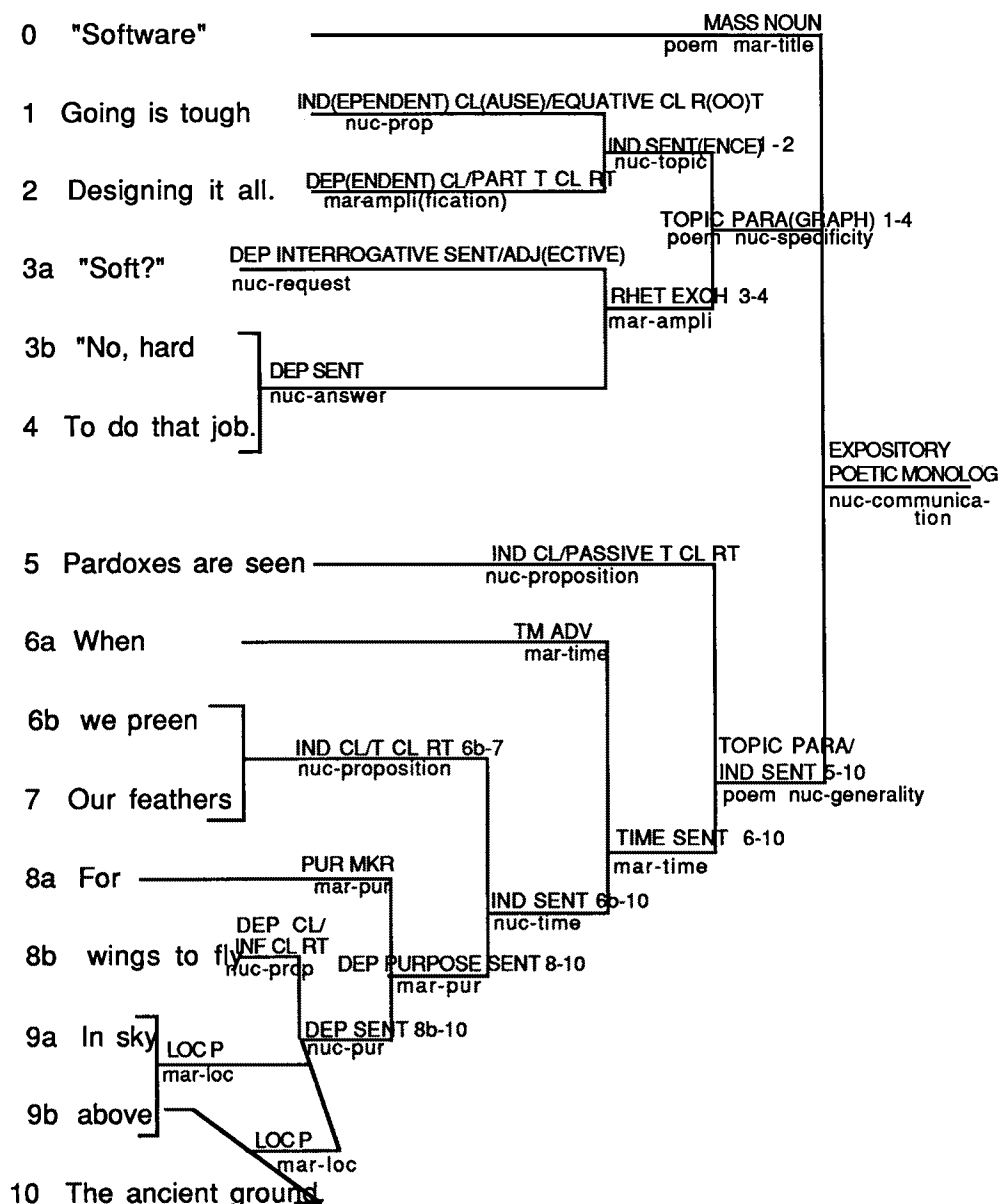
The GREATER LEXICON is the interface between the three hierarchies. In it are entered the examples of each class of each hierarchy, large as well as small. In a normal dictionary the phonological class of an entry is represented by its spelling; its grammatical class is listed, such as noun; and its referential class is represented by the meaning. I discuss in another paper (E. G. Pike, in press) the phonological structure of the poem which is an example of the phonological class: implication poem. In a third paper (in manuscript) I discuss the referential structure of the poem which is an example of the class: poetic reflections on paradox. (For a discussion of grammatical and referential structures of a prose text see Pike and Pike 183.4-73.) Each of these classes is listed for the entry "Software" in the greater lexicon.

1 Grammatical Poetical Features of the Poem

1.1 Grammatical Parallelisms

The first grammatical parallelism of the poem is in the present participles of Lines 1 and 2 (L1 and 2): *going* and *designing*. (For line identification see the display below.) This is an example of mutual agreement of the class, even though each fills a different slot--*going* is subject of the equative construction *going is hard* whereas *designing* fills the predicate slot in the participial clause construction [*the/ their/ people's/ my/ our*] *designing it all*.

The next two grammatical parallelisms are in conjunction with a second important feature of poetry, that of the use of shorter, more ambiguous forms, that is, deletion variants of longer, unambiguous forms. In literary criticism these are often referred to as "leanness of statement." The first of these parallelisms is of an infinitive clause which is found in L4: *to do that job* but is understood for L3a "Soft?" only retroactively. The question *Soft?* is ambiguous until reading L4, when it is understood that the parallelism of *Soft* [*to do that job*]? is implied. Such a cataphoric cohesion device serves to give extra prominence to the question: *Soft?* A further implied expansion is: [*Is it*] *soft* [*to do that job*]? and [*It is*] *hard to do that job*.



THE GRAMMATICAL PART-WHOLE RELATIONS OF THE POEM
AS SEEN IN A TREE DIAGRAM—FROM RIGHT TO LEFT

The class of each constituent is in full caps. The slot-role is immediately below its manifesting class. The class before a slant line [/] is the larger class of which there is only the one immediate constituent for margin:mar, nucleus:nuc, independent:ind, dependent:dep, clause:cl, root:rt, transitive:t, the immediate constituents, then, are of the lower level class which follows the slant line. Abrevia-
sentence:sent, amplification:ampli, paragraph:para, rhetorical-rhet, exchange-exch, transitive-t,
adjective:adj, adverb:adv, purpose:pur marker-mkr, infinitive-inf.

Another parallelism which avoids duplication of statement involves the use of a single word in double function and concerns two location phrases in L9 and 10: *in sky above* and *above the ancient ground* in which the single word *above* in the text is in double function. Phonologically, as K. L. Pike read the poem, *above* is part of a complex intonation contour with *in sky*; also orthographically it is on the same line with *in sky*, hence it is first understood to be a part of the same grammatical phrase with *sky*, but on reading *the ancient ground* it is understood that the sky is *above* the ground. This is comparable in phonology to the pronunciation of a word like *illiterate* in which the *l* is in double function--that of closing the first syllable and at the same time opening the second syllable.

1.2 More Grammatical Ambiguities as Seen in Deletion Variant Structures

In addition to the ambiguities or multiple meanings mentioned above in relation to grammatical parallelisms, there is the implication left to the reader to decide who the actor is in L4--who is actually 'doing' *that job*. There are several likely possibilities: first person singular *my*, or plural *our*, or third person singular *someone's*, or plural *people's* as in [*in my/ our/ someone's/ people's*] *doing that job*. *My* ties the author more closely to the process; *our* would tie the first stanza more closely to the *we* and *our* of the second stanza. However, since there is a very significant grammatical segmentation between the two stanzas, we would suggest that the third person forms would be more appropriate, thus reinforcing rather than diminishing that segmentation. One of the segmentation features between the two stanzas is the cohesion number agreement differences which is singular versus plural. In the first stanza there are the singular ties of *it* and *that job* to *software*, and in the second stanza there is the plural tie between *paradoxes* and *are*. Another significant contrast between the two stanzas is also a prominent characteristic of poetry: the movement from the specific to the general. This is exemplified by the contrastive grammatical roles of the two stanzas: **specificity** followed by **generality** and will be discussed more fully below. In view of this segmentation we suggest that the more appropriate actor and expansion would include the third person option as: [*in someone's/ people's*] *doing it all*.

Then inasmuch as the actor of *designing it all* (L2) is the same as the actor of *doing that job* (L4), and is also the one who is *going* of L1 (however, nonspecific actor in the use of *the* with *going* is rhetorically more acceptable), those lines are understood to be: [*The*] *going is tough* [*in someone's/people's*] *designing it all*. [*"Is it*] *soft* [*for him/ her/ them to do that job?"*] "*No, [it is] hard* [*for him/ her/ them*] *to do that job*." Another shortened form is found in L9a *in sky* for which the normal prose form would be *in [the] sky*. Such normal prose expansions certainly destroy the poetic thrust of the text.

It is interesting to note, also, that the grammatical segmentation between the two stanzas is coextensive with phonological (E. G. Pike 1991) segmentation features. Phonologically the two stanzas are separated by an indrawn breath; and each stanza ends with a different intonational riming pair and exhibit other characteristics which contrast the two stanzas as separate phonological units.

3 Constituent Grammatical Structure

The display above presents the constituent relations of grammatical structure of the poem down to phrase level, but no lower. (For an analysis of a prose text from discourse down to morpheme classes see. E. G. Pike [1988] 1989.31-46.) In the tree display, the class label is above a horizontal line and the label of the slot-role it fills is below the line. A vertical line connects the immediate constituents (ICs) of the including structure. It is to be noted that grammatical roles have to do

with the meaningful/pragmatic relations between immediate constituents of the single including structure. Cohesion features have not been included in the display.

The poem as a whole has three ICs. The first IC is a mass noun (L0 *Software*) filling the slot-role of poem margin-as-title, with the cohesion feature of governing the occurrence of singular in *it* of L2 *designing it all*, and *that job* in L4 *to do that job*. The second IC is a topic paragraph (L1-4) filling the slot-role of poem nucleus-as-specificity, which in turn is followed by a second topic paragraph, having only one constituent, an independent sentence (L5-10). Since there is only one constituent of this second paragraph we assume that it is a topic paragraph. The paragraph fills a second nucleus of the poem, but with the role of generality. The two nuclei combine to have the grammatical meaning relation of specific to general, a poetic feature mentioned above.

The first topic paragraph (L1-4) consists of an independent sentence (L1-2 *Going is tough designing it all.*) filling the paragraph nucleus-as-topic, followed by a rhetorical exchange (L3-4 "*Soft?*" "*No, hard to do that job.*") filling the paragraph margin-as-amplification. The independent sentence (L1-2) has two ICs which have the grammatical cohesion of each beginning with a present participial form, as mentioned above. They are members of the same grammatical class although they fill different slot-roles. The first IC of the sentence is an independent clause (L1 *Going is tough*) filling the nucleus of the sentence-as-proposition, followed by the second IC which is a dependent clause (L2 *designing it all*) filling the sentence margin-as-amplification. Each of these clauses has only one IC; thus the independent clause is simultaneously an equative clause root; and the dependent clause is simultaneously a participial transitive clause root. The domain of transitivity is considered to be the nuclear structure of the clause: the correlation of number and kinds of arguments/ **participant tagmemes** occurring with a specific class of fillers within the simple predicate within the clause.

For English, because the nuclear elements of the clause are tightly grouped (only very rarely separated by other structures), they form an intermediate level between phrase and clause: a clause root level. For languages in which such nuclear elements are not tightly grouped, the clause root is not a useful structure. Foley and Van Valin (1984:77) consider the nucleus of the clause to contain the predicate; their core of the clause makes up tagmemic participant tagmemes, and their periphery makes up tagmemic clause margins. The term 'root', here, indicates the smallest expected filler of a given slot-role. This is analogous to the contrast between a noun root and a noun stem such as *cat* in *cats* versus *teacher* in *teachers*. (For a fuller discussion of transitivity and clause root see Pike and Pike 1982:37-49.)

The rhetorical exchange (L3-4) has two ICs: (1) dependent interrogative sentence (L3a "*Soft?*"), simultaneously an adjective root, filling the exchange nucleus-as-request (asking for information--cf. Longacre 1983), and (2) dependent sentence (L3b-4 "*No, hard to do that job.*"), filling the second nucleus of the exchange-as-answer.

Now turning to the third and last IC of the monolog, which is an independent sentence (L5-10), which is judged to be the single constituent of the paragraph, but whose ICs are sentence-level constituents; the first is an independent clause (L5 *Paradoxes as seen*) (simultaneously a passive transitive clause root), filling the sentence nucleus-as-proposition, followed by a time sentence (L6-10 *When we preen. . .the ancient ground*), filling the clause margin-as-time. The time sentence has two ICs: the time adverb *when* and the independent sentence (L6b-10 *we preen our feathers for wings to fly in sky above the ancient ground.*). This latter in turn has two ICs: independent clause (transitive clause root *we preen our*

feathers) filling the sentence nucleus-as-proposition, followed by a purpose clause (L8-10 *for wings to fly in sky above the ancient ground*) filling the sentence margin-as-purpose.

The purpose clause is introduced by *for* which is assumed can be appropriately augmented, for meaning purposes, to *[in order] for*. *In order for* is a diagnostic marker for 'purpose', and such a paraphrase, if accepted by the speaker, identifies the role of the construction.. The second IC is a dependent sentence *wings to fly in sky above the ancient ground*, and it has three ICs: (1) dependent clause (infinitive intransitive clause root *wings to fly*), (2) location phrase *in sky above*, followed by (3) another location phrase whose basic variant is *above the ancient ground*. Thus the single word *above* is in double function as mentioned earlier and seen also in the tree diagram.

4 The Greater Lexicon

4.1 General Characteristics

The greater lexicon is the interface between the three hierarchies. In the normal instance, a class in one hierarchy is co-extensive with some kind of class in the other two. Each example of each class of each of the hierarchies is an appropriate entry in the greater lexicon. Thus, the greater lexicon is a vast body of data. The statement of the slot-role and cohesion for each class of each of the three hierarchies indicate where each of the classes listed in the greater lexicon may appropriately occur.

Grammatical and phonological classes are smaller sets and are more standardized than referential classes. Excellent work regarding referential class features is in progress by a number of scholars. Particularly significant work is being done by Joseph Grimes (1986), Charles Grimes (1987), Wierzbicka (1985).

The characteristics of referential classes as presented here are intuitive and very sketchy, but they reflect the essential innateness of human recognition of class distinctions which are refined with increased social interaction. Early in life we learn something of the difference between people and birds, between earth and sky. Later on we learn something of the difference between software and hardware. We know something of the difference between a monolog and a conversation, between a discussion of paradox and an historical incident. Many such categories may at first be only implicit; they become progressively more explicit with experience. Below are entered some of the classes in the poem. Referential features included in the lexicon are not described in this paper, but rather in the manuscript which presents the referential structure of the poem. Each referential event (RE) is listed in that manuscript and is referred to, here, in the lexicon as RE followed by its number in the chronological sequence of events in the poem, whether stated or only implied. Also included in that manuscript are referential features of synonymy, antonymy, paradox, metaphor, and intersection of meanings.

4.2 Some Entries in the Greater Lexicon

4.2.1 "Software"

Referential class: Poetic Treatise (Poetic Reflections on Paradox)

Grammatical class: Expository Poetic Monolog

Phonological class: Implication Poem

Some referential class features of "Software":

Core meaning or deep meaning relative to the author's intent: What may be considered, at times, as soft/easy may paradoxically be hard/difficult. This is applicable to the struggle which people have experienced, from antiquity, in reaching out from a current situation toward a new one.

Surface meaning: designing software is difficult for people. For people whose normal life is on the ground, it is inconsistent/paradoxical for them to try to fly.

Paraphrase set of "Software": the poem, this text (both in this paper)

Hyperonym (more generic): poetry

Parts: stanzas, first, second parts; line, etc.

Types: sonnet, ballad, etc.

4.2.2 Person

Phonological class: Stress Group (S)S(S), an etic variant is between square brackets: [SS]

Grammatical class: Mass Noun Root

Some referential class features of the entity Person:

Paraphrase set (in the poem): we, our

Is generic in relation to specific individuals such as Pike and EGP

Agents of: designingReferential; Event (RE)9; making judgment RE1-4, 11; wanting things RE7; searching diligently RE8; exerting great effort RE9; using equipment RE10

Synonyms: human being, human, individual

Antonyms in some contexts: animals, things, government

Adjectival form: human

To dispose of: kill, banish

Plural: people

Types of Person: particular race, nationality, groups with other special characteristics such as academicians, engineers, factory workers, the blind, etc.

Have complex physical, psychological, intellectual characteristics some of which are conscious, but most of which are subconscious

4.2.3 Software

Phonological class: Stress group (S)S(S) [SS]

Grammatical class: Mass Noun Root

Some referential class features of the entity Software:

Paraphrase set: *it* L2, computer hardware (in manuscript discussing the referential structure of the poem)

Synonym: computer programs to run computer

Parts: command?

Singular: a program

4.2.4 Soft

4.2.4.1 Soft (as a modifier in a noun phrase)

Phonological class: (C)CVC(C) [CVCC]

Grammatical class: Adjective Root

Some referential class features of the attribute Soft:

Synonym: easy L3, RE15a (revised meaning)

Verbal: soften, facilitate, ease into

Antonym: hard L3b, tough L1, difficult (implied)

4.2.4.2 Soft in software L0, RE11

Phonological class: (C)CVC(C) [CVCC]

Grammatical class: Adjective Root

Some referential class features of the attribute:

Antonym: hard in hardware RE11

The classification of this entry is very questionable. From one point of view it is simply part of a label for the entity *software*; hence it should not be entered separately as an attribute. However, Pike's use in making *soft* contrast with *hard* leads to its attribute quality even in *software*. (For a fuller discussion of such a problem see Pike 1967.169-73.)

4.2.5 Hard

Phonological class: (C)CVC(C) [CVCC]

Grammatical class: Adjective Root

Some referential class features of the attribute Hard:

Synonym: tough L1, difficult (implied)

Antonym: soft L3a, easy L3a, RE13

Nominal: difficulty

Verbal: harden

4.2.6 Tough

Phonological class: (C)CVC(C) [CVC]

Grammatical class: Adjective Root

Some referential class features of the attribute Tough:

Synonym: hard L3b, difficult (L1 implied)

Antonym: soft L3a, easy

Verbal: toughen

4.2.7 Fly

Phonological class: (C)CVv [CCVv]

Grammatical class: Derived Intransitive Verb Root

Some referential class features of the action identity Fly:

Synonym/paraphrase: move through sky L8-9, Met(aphor): do extraordinary things RE8

Antonym/paraphrase: move on ground RE14; Met: maintain status quo

Nominal: flight

Adjectival: airborne Met: adventurous, ambitious

One who does: flyer, bird, people; Met: people

Cause to: catapult (as from aircraft carrier)

Cessation of activity: to fall, light, land; Met: maintain status quo

Instruments used: For people: aircraft of some kind; Met: Anything that can be used for advancement

4.2.8 Design

Phonological class: Stress group (S)S(S) [SS]

Grammatical class: Transitive Verb Root

Some referential class features of the action identity Design:

Synonym/paraphrase: do that job L4, RE9

Antonym: destroy

Nominal: design

Adjectival: designed

One who does: people

Instruments used: computers, other tools

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TESTING PHONEME DIFFERENTIATION AS A FUNCTION OF CONTEXT CONFIRMATION: A PIKEAN VIEW

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Very *few* international student errors on differentiating minimally paired English *words* contrasted with *many* errors on comparably tested vowel sounds within *sentences*. American high school students sitting in on the same tests had almost no problem differentiating either the words or the sentences. Narrow focus undoubtedly contributed significantly to the limited number of errors on the word test for the internationals - even though the contrasts tested were often not phonemic in the participants' native language. But the profile of errors for the foreign-born was not at all comparable for the two modes of testing. In ways just alluded to the tests "failed" our expectations: they were not simply (mainly?) a test of ability to differentiate phonemes in English, although errors that did occur were generally predictable from contrastive analysis (hence the quotes around "failed" in the above). For the sentences, some international test takers were undoubtedly more *focussed* than others - not by the stimuli as in the word test since the location of phonemic change varied across the sentence couplets (tested as triplets), but in ways comparable to the ways that caused the American participants to be so successful at differentiating these same minimally contrastive sentences.

Reflection on key concepts from classes taught by K. Pike: languages consisting of *interlocking* hierarchical emic levels, language as *form-meaning composite*, the tagmeme as *unit in context*, language as *particle* and *wave* within *field*, etc. meant taking another look at the sentence test in terms of these commitments. When we reviewed a typical tested couplet like *The map/mop is in the closet* (with possible expansion such as *She said the map/mop..I think she said the map/mop..*), we noted that all the familiar (to Americans generally) words in the second sentence - except one - are words repeated from the first sentence, and all, barring none, have the same word borders. Moreover, all the words in the second sentence retain the same grammar as those of the first sentence, and all but the word in phonemic contrast confirm the same meanings originally assigned. The minimally paired words are then - like all the others - fillers of the same tagmeme in the same syntactic/semantic context, and they make a difference to meaning within that framework - to those who are "in the know." For is it not within the constraints of these interpenetrating hierarchies (cf. Pike) that native speaking processors differentiate the minimally paired words? They know how to interact with the input, however much this may be functional, out-of-awareness knowledge. Exactly how the hearer integrates language parameters remains in

dispute - and, in spite of increasing insights, largely unknown. Internationals may have varying degrees of this functional knowledge in a new language. Whether or not, and to what extent, factors involving confirmation of word borders, grammar, and meaning make a difference to ability to register a difference in minimally contrasted sentence pairs became the point at issue. With this as background, we twice tested American graduate students using a majority of couplets whose sentences confirm one another in ways illustrated for *She said the mop/map was in the closet* (congruent types), and a minority of types that replicate this model phonologically but differ in confirming extraphonological factors here at issue to varying degrees (incongruent types)

Besides some original test items, we here present incongruent examples of this turnabout in testing as we have extended them in diverse categories over the years. Many of these have been tried on individuals - one on one. Test scores for those originally tested are given elsewhere (Hendriksen, 1976). Suffice it to say that severely extraphonologically misaligned sentences were scarcely differentiated by the American graduate students tested, and that increase in intersentential congruency correlated with increase in those who marked the sentences as different. We recommend that these couplets be used with great discretion to avoid or forestall an *aha* experience which can unnaturally focus participant attention on sound, skewing results accordingly. One on one testing followed by questions as to what was heard has its advantages. Limiting the number of test items administered to any one person or group can lessen the chance of *aha* effects. In this connection, slightly incongruent examples should be tested by themselves or late in a testing session, perhaps accompanied by a reaction time measure (note: *the ease with which all sentences are processible on these pages underscores the distinction between writing and speech, though considerations related to expectancy are common to both reading and listening*).

1. Word Border Nonalignment

- 1.1 Accompanied by syntactic/semantic shifts involving the phonemic contrast: *John helped Pete to come at eight thirty/accommodate thirty. Could there be a nefarious mind/enough areas mined to account for all this? After reading Passages, who had you cast aspersions/as Persians on the high school stage? I quit turning a 6 around (upside down) since my granddaughter very early deemed it as a 9/asinine* (stress *as* here to match the first syllable of *asinine*, contrasting it from the previous example where *as* is unstressed). *It swings back an' forth/its wings beckon forth.*
- 1.2 As in 1.1 except words in phonological contrast are of the same grammatical class and are word-border aligned: *Where is that old, iron wheeled/iron willed, truck you lent/truculent Horace Finnegan?*
- 1.3 As in 1.1 where word border shift is involved with the phonemic contrast, but unlike any of the above in that essential tagmemic congruence exists between the sentences: *Do you think that yer (thatcher)/Thatcher smart*

to have resigned? Compare the two sentences - without deletions or 'smears' - as to grammar alignment:

Do you think that you are smart to have resigned?

Do you think that Thatcher is smart to have resigned?

- 1.4 Unlike 1.3 with its basic grammar alignment, but minimal word border difference correlates with increased meaning resemblance between the sentences: *The ladies confessed that as girls they used to/used a smile to attract boys* (use a schwa for the vowel in *to*).

- 1.5 Similar to 1.3 in using sentences very much aligned grammatically, and similar to 1.4 in terms of intersentential meaning resemblance: *With one swift slap on the hand off of her rule(r)/off a ferula, Miss Fidditch kept offenders in line*. Note the similarity in syntax of the relater-axis (prepositional) phrase involving the /v/-/f/ contrast (other possible contrasts include initial /h/ in stressed *her* matching the stress on the first syllable of *ferula* vs. its absence in the sequel, but this /h/ is often eliminated after a consonant in casual speech so that its nonoccurrence in the second sentence is likely to make little impact perceptually. Also, a difference exists between the final /r/ in *ruler* and its absence at the end of *ferula*, except for those dialects where final /r/ is dropped so that it has no overt manifestation). The grammar similarity is as follows:

off of her rule(r)

off a ferula (ferula: rod used to punish schoolchildren)

- 1.6 Similar to key features of 1.3, 1.4, and 1.5 except that the sentences are exactly comparable as to grammar showing all forms to be overtly expressed with no smears (unlike 1.3). Also, no 'unfamiliar' words such as *ferula* are used: *Saul put his arm around/armor on David*.

Note the precise agreement in grammar and in the corresponding role:

<u>Subject</u>	<u>Predicate</u>	<u>Possessive</u>	<u>Adjunct</u>	<u>Relator</u>	<u>Axis</u>
Saul	put	his	arm	around	David
Saul	put	his	armor	on	David
<u>Actor</u>	<u>Action</u>	<u>Possessor</u>	<u>Undergoer</u>	<u>Scope</u>	<u>locative</u>

- 1.7 Minimal word border difference in what otherwise resembles the syntactic and semantic balance of a congruent sentence pair: *Of those who won awards there is no one as worthy/swarthy as Bill* (note: a kind of referential cohesion exists for the first sentence that is not true of the sequel: *worthy award winner*. Compare under 1.1 *After reading Passages* ...the first sentence vs. its sequel in terms of cohesion).

- 1.8 Word-border difference restricted to word internal contrast where the similar sounding first syllables of the contrasted words show meaning resemblance. Difference in the meaning of words in contrast is localized - the two sentences are nearly synonymous in intent: *The little girl created a mini-school/minuscule classroom to teach her dolls the alphabet*. (undoubtedly the *minuscule classroom* is a *mini-school classroom* and vice versa).

- 1.9 The following restrict phonological difference to border contrasts that are here made to take place (but due to gemination, may not always do so). The couplets - whose member sentences are meaningfully quite similar - show progressively greater alignment of intersentential meaning: *Sally gave up alimony/palimony to marry that Jones fellow. She lay/laid down and fell asleep. Jeff made a quick estimate/guesstimate of the number of people in the stadium. Russ squashed/quashed that idea before his son could defend it.* (Note how certain extraphonological differences appear to rest on style alone: *lay/laid, estimate/guesstimate*).
2. **Word Borders 'Given Back.' Issues and Shifts Involving Syntax and Semantics persist:**
 - 2.1 Main clause vs. noun clause embedded in the main clause - minimally paired words are tagmemically incongruent: *No one doubted the young lad/led, but the aged were disgruntled* (cf. the following for word replacements meant to favor the sequel in terms of referential cohesion: *No one doubted the blond/blonde lad/led, but the beauty contest wasn't over yet*).
 - 2.2 Compound main clauses: one receives a verb complement; the other a noun clause. Homophones are used, and the minimally paired words belong to different tagmemes: *He said those boys won't work, but I heard the one chop/chap wood/would*.
 - 2.3 Main clause embeds noun clause vs. relative clause, homophones are used, and the minimal pair continues to belong to opposing tagmemes: *It was no big deal that he was too subtle/to settle* (use unreduced *to*).
 - 2.4 Main clause embeds noun clauses: initially this noun clause very likely embeds a relative clause, while in the sequel it contains an adverbial clause - both dependent on a literal to metaphorical shift within the *that* clause. Words in phonemic contrast share class (both nouns): *I remember when the collar/caller came that she put on the dog*.
 - 2.5 Main clause embeds noun vs. relative clause and *heteronyms* (words with the same spelling but different meanings and pronunciations) are used: *It was in the letter that he wanted to resign/resign* (rizayn/risayn).
 - 2.6 Words in minimal contrast are of the same class (nouns), but not of the same slot. Moreover, the relative clauses are probably (but not necessarily) controlled by different antecedents and the relater-axis (prepositional) phrase is initially adverbial, but in the sequel it is probably adjectival: *Jim couldn't get over the hill/heel in that old car that kept giving him trouble*. (note: besides form class agreement of the minimal pair here, the high functional yield of the /i/-/l/ contrast may contribute to ability to differentiate the sentences).
 - 2.7 Relative clauses are controlled by different antecedents, and the internal construction of these clauses contrasts indirect vs. direct object (in tagmemics: adjunct slot and scope role vs. adjunct slot and undergoer role) so that the words in phonemic contrast, though word-aligned nouns,

are fillers for different tagmemes: *The boy had rifle ammunition that was given the lad/lead by his father.*

- 2.8 Relative clause switch of antecedents as in 2.7 effects a clause-internal relater-axis phrase shift from locative (scope) to temporal as a metaphor replaces its literal counterpart. Minimally paired verbs share predicate status in a bi-intransitive clause: *The decision on that pitch that rolled/ruled right off the bat was never changed.*
- 2.9 Compound main clause shows anaphor in the second clause to shift anaphoric control between two nouns in the first clause. As such minimally paired words are fillers having similar function in an identive or equative clause, but differ as to what they 'identify': *The custom started with Nixon but that is one president/precedent she can't abide.*
- 2.10 Sentence-final adverbial relater-axis phrase is controlled by different preceding verbs across the sentences. Minimally paired words fill similar slot and class in the immediate (differently controlled) construction: *By means of music piped through an intercom, our doctor favored each patient who came in with a melody/malady.* (Phonemic contrast occurring on the 'rise' of the rise-fall sentence-final contour favors differentiation.)
- 2.11 Same as 2.10 except that the differently referenced phrase is locative and contrasts "a clause margin tagmeme of location" with "a scope tagmeme within the clause root" (Pike and Pike, 1982, 45-46) *Susie liked/locked the cake her mother baked in the church kitchen.*
- 2.12 No differently referenced phrase as in 2.10 and 2.11, but the locative phrase again shifts between an obligatory scope type and an optional locative (Note: with this high degree of congruence, a time reaction measure should accompany a probable 'correct' differentiation): *Mary was hauling/hulling the nuts upstairs. Little Willie shut/shot his brother in the closet.* And, with minimal meaning difference: *Once on the green, golfers try to put/putt the ball in the pot.*
- 2.13 Verb complement with and without purpose (i.e. *in order to*) correlates with a shift in the meaning of *has/had* in state-bitransitive clauses. (For eighteen differences in the use of *have/had* influenced contextually, see Pike, 1982, 133). Phonemically contrastive words are both nouns: *Ann might buy the house she leases, but she has the tendency/tenancy to study her options carefully.* Similar but with shifted governance of a pronoun: *She had the goal/gall to spur her on.*
- 2.14 Some Chomsky-inspired examples involving complements: *"John appealed/appeared to Bill to like himself"* (Chomsky, 1971). *They want/wa(r)ned Tom to stop his nonsense. When it was time to go, the band was hard/heard to leave.*
- 2.15 Verb complement vs. relater axis phrase: *Jim wasn't feeling too well but he tried/trod to work anyway.* More plausible: *The boy on the bike is willing/wheeling to work.*

- 2.16 Equative vs. transitive (or bi-transitive) shift accompanied by other syntactic/semantic changes: *Being blown over by the storm was a shock/shack from which the old lady failed to recover very much.*
- 2.17 Reduced from 2.16 in restricting change to equative vs. transitive sentences: *She said her hobby/hubby was working crossword puzzles. No one could have made a better pal/pail to take fishing.*
- 2.18 Pre-head vs. post-head noun modification structures involving homophony where phonemic contrast distinguishes a noun from its similar sounding, but phonemically contrastive verb: *Considering the options, that one wee wooden house/we wouldn't house made good sense.*
- 2.19 Noun head modification structure shows modifiers in pre-head position. One modifier is replaced by a phonemically contrastive modifier whose 'head' is one of the modifiers of its counterpart's 'head.' This 'new head' (*viol*) continues its role as modifier in the larger structure: *Without a strong/strung bass viol player who will carry the bass* (note the semantic ambiguity of *strong* and *carry the bass*)?
- 2.20 Noun head modification structure shifts meaning and syntactic derivation of its compound modifier as it changes the meaning and reverses the referential temporal order of the verbs in its main vs. relative clauses: *Was the half-drunk cop/cup that was busted dropped?* (cf. the probable changed temporal order of the differently interpreted sequence...*busted dropped*). (Note: When the grammatical congruence of the contrasted words is similar - here *cop* and *cup* both fill the subject slot and the role of undergoer - ease of differentiation can hardly *simply* reemphasize the phonological difference even though, as here, substantial difference exists in the referential context). If it is argued that as the differently derived *half-drunk* shifts from the meaning 'half intoxicated' to 'half consumed' the norm favors reference to the liquid consumed rather than its container, we offer: *The half-drunk bear/beer disappeared.*
- 2.21 Reduced from 2.20 in that only normal vs. 'borrowed' (derived) modifiers comprise the shift: *She said she belonged to the wrong/wronged sex. O please don't haggle/Hegel me anymore! Having viewed the wreckage, they left the sad/said scene dejected.*
- 2.22 Adjunct as undergoer (direct object/goal) vs. adjunct as scope (indirect object/benefactor): *They were serving brews/Bruce (ale/Al) when we entered.*
- 2.23 Adjunct as scope (indirect object) followed by adjunct as undergoer (direct object) replaced by homophonous disputed-status adjuncts (objects) the last of which (*one*) does not have its antecedent in the preceding clause as does its counterpart (across the sentences, referentially speaking, the final main clause illustrates contrasting consequences resulting from the condition expressed in the dependent clause). The minimal pair involves word-aligned, similarly 'tensed' predicates of the main clause: *If Tim keeps asking for a workbench, his dad'll build/belt (h)im one.*

- 2.24 Like 2.23 in having a syntactic and referential link between the final clause and its predecessor, but unlike 2.23 in that the link is restricted to the first sentence, and unlike the preceding examples in that the phonemically contrasted verbs in action bi/intransitive clauses are followed by a preposition (of a relater-related phrase) vs. an homophonous particle (see Pike and Pike, 1982, 218): *When we got to the foot of the ladder, George climbed/clammed up.*
- 2.25 Verb particle followed by undergoer adjunct (direct object) vs. verb plus relater-axis (prepositional) phrase in action transitive vs. action bi-intransitive clauses: *She tried on/trod on my shoes. Al/ale ran down his wife's new dress.*
- 2.26 A morphological shift in the contrasted words marks the change: *That essay ought to be reworded/rewarded;* and with close meaning alignment: *That was a messy, unkept/unkempt place if I ever saw one.*
- 2.27 Meaning shift is minimal like the second example in 2.26, but unlike that example in terms of showing shifts in syntax: noun to adjective referenced to that noun; verb to its noun in complement vs relater-axis constructions; and different *do* 'functors' (one marked negatively) in two contrasting varieties of nonstandard English: *I wrote a postcard and a letter, but the letter/latter was longer. Small children are led to believe/belief in ghosts and goblins by what they read. Johnny don't/done got no dog.*
3. **No Changes in Word Borders or Grammar. Referential Shifts and Issues are Highlighted:**
- 3.1 Use of idiomatic vs. homophonous literal material (cf. *When it comes to the age/edge of the page, it should ring a bell, but it doesn't. At which age/edge should we start drawing the line? The players/pliers that weren't in the hole were on the level* (possible congruency exists here).
- 3.2 Cross-sentence homophones contrast referentially with alternatives in the same sentence that are in minimal contrast: *Reference was made to both patience/patients and impatience/inpatients. John was a marathon/Marathon man, but now he prefers golf/Gulf.*
- 3.3 Polysemic shift on a single word: *That melody/malady is catching.*
- 3.4 Polysemes meaningfully more closely aligned than in 3.3 (allosemes of the same monoseme? cf. Charles Ruhl): *He managed the deal/dill, but he couldn't swallow most of what was dished out. That dirty dill/deal was cast aside.* Reduced to a single-word polyseme: *Those shafts/chefs probably won't support that. He's had that iron wheel/will a long time.*
- 3.5 Meaningfully similar polysemes (allosemes?) which are more nearly synonymous than in 3.4: *Charlie found her impatience/impatiens to be growing steadily. I knew you couldn't say no to Mel/mail (Al/ale) that easily.* (cf. Likely: refusal verbally expressed to the refused, namely *Mel*, vs. refusal of the refused, namely *mail*).
- 3.6 Words in contrast are among the *confusables* and have meaning resemblances: *It was a biennial/biannual event. They were quick to*

censor/censure portions of the play. The money was dispersed/disbursed in many directions.

- 3.7 Use of medial phonemic contrast between multisyllabic words (compare a possible *bathub* effect, Aitchison, 1987, 119-121) one of which may be familiar to the listener, the other capable of being confused with it (?) if previously unknown or barely known: *Those people are Armenians/Arminians. What did you say pacifism/passivism is?*
- 3.8 Co-hyponyms (words whose common genus is manifested by a common suffix) are here contrasted: *Except for agoraphobia/acrophobia Jerry appears emotionally sound. Mary is studying etymology/entomology at the university. And, (meaningfully similar): That plant is definitely an endophyte/entophyte* [Would a botanist score high here? DPH]
- 3.9 Synecdoche (cf. metonymy) is true of the second sentence but not of the first: *I wanted to help him, but what's a buddy/body to do? How many hens/hands does he have on his farm?*
- 3.10 Role (or Case) may differ between the member sentences of the following: *Maybe you distrust/distressed them more than you realize. I don't know why your brothers suit/sued them more than you. He took a job/jab on the what? My buddy/body really hurt me when he hit me. The cop/cup hit him on the arm. Was it your idea that the lad/lead should fill the box? That Ed/ad surely sold a lot of cars.* (Note: to Pike & Pike case/role comprehends much more of the language than for many, and yet various emic role distinctions made by others are etic for the Pikes)
- 3.11 A word meaning shifts from normal focus on outside referent to that same word representing itself as a "spelled item" (Pike and Pike, *ibid*, 1982, 341-342): *The teenager spilled/spelled coffee/'coffee' on the sand.*
- 3.12 Somewhat similar to 3.11 except that the initial homophone identifies the place where one receives what its counterpart names: *Why don't you call/cull 'Information'/information from here?*
- 3.13 Analytic vs. Synthetic (a disputed distinction among philosophers). The comment defines the topic initially, but not in the sequel: *Because the blind/blonde cannot see, the witness was disputed.*
- 3.14 Clausal (main or complement) comment made about the topic does not define it (as in the first sentence of 3.13), but it depicts activity or state normal to it initially that is less common to the participant(s) involved in the sequel: *The wrestler/rustler pinned his opponent to the floor, "Tell the gardener to plant/plan some more tulips." (Cole and Jakemik, 1980). Those Armenians/Arminians are from Armenia.*
- 3.15 Referential imbalance shows close ties between two parts of a sentence in one instance, but not in the other: *A slogan helps and those three words/wards voted him in. As I peered through the study door, I noticed how immaculate his study/steady was.* (cf. 1.7 and 2.24).
- 3.16 Meaningfully different, phonemically contrastive fillers of a tagmeme contribute moderate to little difference in the meaning of the containing sentences: *One can find wildly/widely different notions of meaning among*

- scholars. That cost/caused him more pain than it was worth. His father set/sat the boy down to lecture him. Seated in my paddle boat, I watched my neighbors paddle/pedal theirs across the lake.*
- 3.17 Phonemic contrast under reduced stress where the like-sounding words in contrast are meaningfully related, but where the first one is definitely more familiar than its counterpart (*behave* may be known to very few outside of psychology): *That ridiculous behavior/behave angered him.* And similarly 'stemmed' and suffixed 'confusables': *It was a tortuous/torturous experience. That was a credible/creditable performance.*
- 3.18 Multisyllabic, near-synonyms contrast medially in an unstressed syllable, but as fillers for the same tagmeme contribute little if anything to a meaningful difference in the sentences (cf. possible *bathtub* effect): *We can expect great exultation/exaltation if that happens.*
- 3.19 First sentence is a very common phatic expression, its sequel is possible under restricted circumstances: *How are/were you?* (but cf. *How're you?*) *Have a nice day/stay. It's just no trouble/treble at all.*
- 3.20 *Illicutionary Act* (an act performed in the saying of it) is true for the first sentence, but not for the past tense reference to it in the sequel: *I apologize/apologized for some of these examples; I dare/dared you.*
- 3.21 Normal first sentence includes one of a restricted set of fillers within an immediate familiar temporal context, its counterpart is abnormal (deviant?) in that context, but fits the larger context well: *A week/wick ago this candle was burning brightly* (Dylan Thomas: *"a grief ago I saw him there."* Also, *I knew him a wife and two kids ago*).
- 3.22 Normal first sentence contrasts with a jocular sequel where phonological contrast is on an unstressed syllable involving the jest: *The way the boss drills job applicants is enough to give any aspirant/aspirin a headache.* (Perhaps 'easy' due to the link: *aspirin-headache?*)
4. **More than one Phonological Difference Accompanies Greater to Fewer to No Difference in Word Borders, Grammar, and Reference (Some Style Change is Introduced):**
- 4.1 Several differences in word borders, grammar, and reference:
Don't you wish you had all decided to adjourn?
Don't you wish you had all this added to whatcha earn?
 (added here means *added on*, not *in addition to* which would require differences in suprasegmentals from the first sentence)
- 4.2 Differences in word borders and reference persist, but difference in grammar is restricted to the internal structure of the items fitting the same larger slot/class (noun phrase syntagmeme): *That's a good way to wreck a nice beach/recognize speech* (E. Bard, 1990): Note the similarity in grammar down to the noun phrase level:

wreck
recognize

a nice beach
speech

- 4.3 Minimal shift in word borders accompanies minimal shift in grammar. Alliteration is used: *Ted tested tricks taught to alligators/tailgaters.* (*to* should be pronounced with the reduced schwa sound and used in the first sentence only).
- 4.4 No shift in word borders, grammar, or overall meaning (sentence reference). Internal rhyme and synonymy reign: *That is damnable, lamentable, condemnable/contemptible, reprehensible behavior.* Those failing to realize a difference between the sentences of 4.4 have 'missed' the differences indicated in bold lettering below:

...condemnable....

...contemptible...

These two words, though related in meaning, are hardly synonymous. Yet as fillers of the same tagmeme, they do little if anything to contribute to a difference of meaning within *this particular* context.

"Language is not merely a set of unrelated sounds, clauses, rules, and meanings; it is a total coherent system of these integrating with each other, and with behavior, context, universe of discourse, and observer perspective. It is *form-meaning composite*." (Pike, 1982, 44)

"The tagmeme, as a *unit-in-context*, rejects any approach to language which abstracts items from context under the assumption they can be understood in isolation from larger context, or by abstracted formal and logical internal description alone. Everything gets part of its nature *from its relation* to other items in the system. The relation includes that of the immediately-containing larger unit, the class of which it is a member, the impact on behavior or on the understanding of meaning which it elicits, and the coherence with a background with which it is integrated or by which it is controlled." (Pike and Pike, 1983, 78)

Compare the above quotes for their timeliness with an increasingly respected recent approach to language processing:

"...the form and meaning of language are closely entwined. Although there may be things that can be learned by studying artificial languages that are purely syntactic...*natural* language processing is crucially an attempt to retrieve meaning from linguistic form...the networks studied here build in sensitivity to context...Representations in classical models *are* naturally context-insensitive. This insensitivity makes it possible to express generalizations that are fully regular at the highest possible level of representation (e.g. purely syntactic), but they require additional apparatus to account for regularities that reflect the interaction of meaning with form and that are more contextually defined. Connectionist models, on the other hand, begin the task of abstraction at the other end of the continuum. They emphasize the importance of context and the interaction of form with meaning." (J. Elman, in G.T.M. Altmann, ed. 1990, 376-377).

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PSYCHOLOGICAL REALITY IN TAGMEMIC PHONOLOGY
AND STRATIFICATIONAL PHONOTACTICS

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In the preface to his 1947 textbook Phonemics, Kenneth Pike stresses that a course in linguistic analysis must involve continual practice using real or constructed data. When I took courses in tagmemic analysis from Pike's colleague Ruth Brend, I certainly found that she adhered to this pedagogical principle. Each day we were assigned a problem set for analysis and subsequent discussion, while term papers involved analysis of a text of natural language data. Theory was not ignored, particularly in classroom discussion, but heavy reading of theoretical texts was not emphasized.

It worked. I came away from these courses with a solid understanding of the workings of tagmemic linguistics. However, that is somewhat beside the point I'm trying to make at present: that because of my personal background, when I speak of Pike's influence on my linguistic viewpoints, I mean not so much the impact of his writings, nor of personal contact with a man whom I've met only once or twice, as his indirect influence via Dr. Brend's teaching. I should also mention that while studying tagmemics with Dr. Brend, I was also studying stratificational linguistics under David Lockwood and using as a textbook the then current revision of his excellent 1972 Introduction to Stratificational Linguistics. Thus, until two years ago, it would have been fair to say that for Sydney Lamb as for Kenneth Pike that his influence on my thinking was essentially indirect. This is no longer the case. However, it is true for Lamb, as for Brend and Lockwood, that his influence on me has stemmed less from his writings than from classes and conversations.

One implication of the preceding is that this paper is not overflowing with citations from published sources. When I make general mention of tagmemic and relational network linguistics, I refer to my understanding of them developed over the past several years, shaped by specific learning experiences which have mostly become blurred in my memory. The other, I hope more significant purpose of this introduction is to make clear the history of my experience with tagmemic and relational network linguistics--for this is a personal paper, an account of how I have come to reconcile a part of the two varieties of synchronic linguistics to which I am most attracted. It is not an earth-shattering paper. There is little in here which stratificationalists, at least, will find unthinkable. Yet I believe that it states something which has not been explicitly stated before, and in so doing

makes clear that the viewpoints of Pike and Brend and Lamb and Lockwood are not so different as a naive observer might believe.

I mentioned that I have trouble remembering details of the courses I've taken over the years. However, there is one incident which I remember quite clearly, an incident which leads us, finally, to the topic of this paper. It happened that one day before one of Dr. Brend's classes, we students were discussing the phoneme. Naturally, we soon arrived at the question, what are phonemes? Are they in any sense real, or are they simply convenient fictive units of analysis? When Dr. Brend arrived, we put the question to her, and she responded, "Well, I think they're psychologically real."

That answer, which I had never heard before, satisfied me. It made sense to me that phonemes were real in some way in the minds of native speakers; for the moment, I didn't try to define psychological reality any more precisely than that. Yet at about the same time as my studies under Dr. Brend, I was also being introduced by Dr. Lockwood to stratificational grammar. As is well-known, relation network versions of stratificationalism emphasize that there are no phonemes, nor any syllables, any words (phonological or grammatical), any things whatsoever in languages. Further, if we take psychological reality to imply that a speaker/hearer operates in terms of phonemes, words, etc., in producing and comprehending speech, then stratificational linguistics denies even the psychological reality of such units. In stratificational terms, encoding and decoding involve only activation moving through a network of lines and nodes without reference to any units.

Nevertheless, network linguists like to use the terms phoneme, morpheme, syllable, and in my case, at least, all manner of higher-level hierarchical phonological units up to the text. We write these terms next to pieces of our diagrams, and surely there is more than mnemonic purpose to this labelling. Moreover, there is considerable evidence that native speakers will, for example, identify two specific utterances of coallophones as "the same thing." (Sapir 1925 and 1933 are the best-known and probably the best articles on the topic). The mentalistic definition of the phoneme derived from such evidence is often understood as by Jones (who, however, rejected the mentalistic definition): "The idea of those who hold the mentalistic view would appear to be that the phoneme is a single 'abstract sound' or 'sound image,' which the speaker is capable of bringing to mind at will, and which he (subconsciously) endeavours to manifest concretely when he speaks" (1967:212). He adds, "According to this theory the sound-image would appear to be in perpetual existence in some non-material way. For it is presumably not possible to bring to mind at will a non-existent thing" (1967:213, footnote 4).

Inasmuch as Jones' understanding of the meaning of psychological reality is hardly compatible with relational network linguistics, it is fortunate for me that his understanding is not the only one. A better understanding derives from Pike. In Phonemics, although he defines the phoneme simply as a unit derived through analytical procedure (63), he goes on to stress that the final goal is "an analysis which parallels the vague or explicit observable reactions of speakers to their own sounds" (64). Likewise, in Language in Relation to a Unified Theory of the Structure of Human Behavior, he specifically rejects Jones' characterization of the meaning of psychological reality and again emphasizes speakers' reactions to sounds.

The term reactions is the key. Jones is quite wrong in presuming that we cannot bring a non-existent thing to mind; we do so all the time. In the case of phonemes, for example, few linguists believe that there are Platonic forms of each phoneme inhabiting some metaphysical dimension. Nor, as we know, are there discrete phoneme-sized segments in the speech stream. And as Lamb often points out, there are no little phonemes lodged among the squishy masses of nerve tissue which make up our brains. Yet native speakers will regularly identify two temporally and phonetically distinct instances of acoustic disturbance as "the same thing"--if they are asked to think about them. That psychologically real thing has come out of nowhere, but now it does exist and will continue to exist so long as the speaker continues to think about it. It is rather like the illumination from a refrigerator bulb, which is always there if you try to get a look at it but doesn't exist when the door is closed.

The reactive definition of psychological reality is particularly interesting when applied within a cognitive relational network framework as currently used by Lamb. Such a framework prefers to regard a network as a system of interconnected nections rather than simply a system of lines and nodes. One advantage of this viewpoint is that it becomes obvious that nections generally correspond to the units of other linguistic theories. Thus, depending of course on the specific language under analysis, there may be lexemic nections, morphemic nections, and in phonology phonemic, onset and rhyme, word, phrasal, or many other nection types.

In this paper I am assuming on an a-priori basis that a network of some sort is the cognitive basis for linguistic behavior. Given this assumption, it is not circular to claim that the existence of a particular nection discovered by a test of psychological reality in fact explains the speaker's reaction in stating the existence of a unit. In this framework, an introspective speaker will recognize as real all and only those units corresponding to nections in his cognitive network.

A caveat is in order. A dynamic network model assumes that a speaker's cognitive system is constantly undergoing

changes, including the addition of new nections. Therefore, a speaker could create a nonce nection when required to treat some previous non-unit as a unit. Actually, this process is fairly common at higher levels, as when a phrase becomes a lexeme or a morphemic reanalysis occurs. However, most such nonce formations fade away from lack of reinforcement.

At the phonological level, new nection creation once the phonological system has been acquired is probably not so common, although poets often use it to cram unwilling phrases into meter. The most significant source of nectional innovation in phonology for a language such as English is certainly orthography. For example, a child learning to speak English acquires two phonemes /θ/ and /ð/. In school, unfortunately, the child learns that /θ/ is a two unit sequence th, and further that /ð/ is the very same sequence. As a result, many students in beginning linguistics classes have trouble believing that either /θ/ or /ð/ is a unitary sound or even that the two are different.

The last example brings out another important point, namely that some nections and interconnections are stronger than others. Obviously, a literate speaker of English has not obliterated the phonological distinction between /θ/ and /ð/. But when faced with the question of whether th /θ/ and th /ð/ are the same or different, the literate English speaker living in a society which so values the written word is likely to choose orthography over sound as his criterion. Of course, there are other factors, such as whether the choice is presented visually, orally, or both, yet I do not doubt that at least for most American college students, writing possesses primacy.

My final point concerns the development of writing. I do not suppose, as some linguists do, that the phoneme is an outgrowth of alphabetic writing. Rather, alphabetic writing results from the strength of phonemic nections in cognitive linguistic systems, just as logographic and other systems reflect the strength of their respective nectional counterparts. In this regard, it is significant that the Semitic languages first developed a consonantal writing system. By contrast, we would search in vain for a writing system that took as units for graphemic representation each sequence of five phonemes or each 1.5 second burst of speech. Such units have no natural part in a cognitive linguistic system and so are not natural bases for writing systems.

In light of the interesting ramifications of the acceptance of psychological reality, I am glad that tagmemic linguistics brought it to my attention. It is mostly because of Drs. Pike and Brend that I believe in phonological units of various sizes. It is largely due to Drs. Lamb and Lockwood, on the other hand, that I don't believe in them. Luckily, I find that, properly understood, these two beliefs are compatible. In other words, I can have my cake and eat it too.

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KENNETH LEE PIKE AND PHONOLOGY

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It seems almost unnecessary to speak of Kenneth Pike and phonology. Certainly his early studies and contributions in that field are widely known, used, and recognized. Yet, for a variety of reasons, his most recent studies on that topic have not had wide circulation, and they deserve much wider discussion.

In this paper I will first briefly scan Pike's early works in phonology and then summarize his more recent studies which have not had much notice.

Pike's expertise in phonetics is legendary. There are widely-circulated tales about some of his accomplishments — for example, his instruction of eminent professors in the production of glottalized stops at the 1930's session of the LSA Summer Institute at the University of Michigan. In addition, some tell of his producing a Rebel Yell when the presenter of a paper at a well-attended conference asserted that no living American could do so. And I well remember him teaching an entire audience the techniques of ventriloquism; and another occasion when, in the process of one of his famous monolingual demonstrations, the Mandarin speaker became so impressed with his mimicry of her Chinese (tones and segments) that she thought he already knew that language and launched into long explanations (in Chinese) of the elicited items.

Pike's *Phonetics*, published in the early 1940's is still a major seller and has probably set some sort of a record for longevity — probably because of its unmatched inclusion treatment of virtually all of the possible speech sounds. This book is still hailed as “[one of the] classic accounts of the principles of articulatory phonetics” (Clark & Yallop, 1990:21). Clark & Yallop also state (1990:76):

An early and influential critique of the IPA's style of phonetic description was Pike's (1943), which has significantly influenced later approaches to phonetic description, including our own. Pike was conscious of the need to broaden the range of languages on which phonetic generalities were being based, and he wanted to account fully and consistently for all the articulatory mechanisms that were available to humans. His survey is impressively thorough....its value lies in its challenge to traditional approaches and its influence on later work.

And Solomon Sara notes (1990:212):

In the articulatory domain....Pike's *Phonetics*...establishes the terminology, methodology, technique and the phonetic processes and mechanisms that have continued to be employed to now in isolating segments in the stream of speech.

Pike's innovation of the concepts 'vocoid' and 'nonvocoid' (or 'contoid'), contrasting them with 'vowel' and 'consonant' have found a permanent place in phonetic literature, and the usefulness of these have been well shown in the description of many different languages.

Later, also in the decade of the '40's, Pike published three other volumes on phonology, all of which have been widely read. After *Phonetics*, his *Intonation of American English* appeared. Much succeeding work on English intonation has been based on that study.

After having to devise his own procedures for the analysis of Mixteco (a tonal language of Mexico) and assisting his sister Eunice in her analysis of Mazateco (another Mexican tonal language), Pike published *Tone Languages* in which he set out procedures for field linguists wishing to analyze similar tonal languages. Then, in 1947, Pike's *Phonemics* appeared. Commenting on that work, Clark & Yallop (1990:334) state: "The book remains unusually thoughtful and comprehensive, and has been studied by hundreds of field linguists...."

Of Pike's work during this period, while commenting on its exclusion from a volume, Stephen R. Anderson (1985:280) states: "The exclusion...is impossible to account for in terms of its intellectual quality or its relevance to the dominant issues in American structuralist discussions."

Sections of the phonemics volume are still widely used — especially in the analysis of indigenous languages. And many of its insights are still held by many. Pike himself, however, has modified and expanded many of these ideas, during the 45 years since its publication.

Following those first four major works, Pike's main phonological studies have been presented from the perspective of his tagmemic theory. The first appearance of phonology from a tagmemic viewpoint was in Chapters 8 and 9 of the first edition of Pike's *Language in Relation to a Unified Theory of the Structure of Human Behavior* (1955, revised 1967). Besides containing somewhat revised material from the earlier phonemics volume (e.g. re overlapping allophones) and adding a considerable amount on the syllable, to me at least, the most interesting section is on the analysis of suprasegmentals. Pike there proposed three alternative 'solutions', seeming to favor Solution 'C' but concluding that he was unable to fully apply it all that time. In the years between the appearance of that proposal and today, Eunice Pike has been a scholar who has applied that solution to the analysis of many divergent languages. (She reports on some of those studies elsewhere in this *Forum*.)

Her brief summary of tagmemic views on suprasegmentals in her chapter on Phonology in Brend and Pike (1976) is most useful. Her bibliography there lists numerous articles by a number of different authors. Pike has also utilized this variety of description in his analysis of spoken poetry (see Martin & Pike, 1973 and Pike & Pike, 1983, Chapter 2).

Briefly, Solution 'C' proposes that suprasegmentals be considered features of phonological units which are hierarchically arranged. Thus, suprasegmentals are not considered to be units themselves, but, rather, components of units. This proposal solves a good many problems. For example, when one suprasegmental feature — such as length — functions at more than one level (e.g., at the syllable, phonological word and phonological sentence levels as in English) it can be considered as a feature of more than one unit.

This approach also provides a natural place for the syllable (as well as larger units such as feet, phonological words and phrases, etc.). The following data (taken from Problem 71 of Eunice Pike's *Phonological Workbook* and reproduced here by permission) illustrates this approach:

tal(1-3)n	'bread'	ni(1)ti(3)	'paper'
ta(1)ngko(3)	'cake'	a(1)se(3)	'money'
ko(1-3)	'sweet'	ni(1)te(3)se(3)	'dollar bill'
sa(1-3)ng	'hard'	ka(1)to(3)ne(3)se(3)	'cashier'
ta(1)nze(3)ng	'toast'	si(3)ka(1-3)	'yes'
no(1-3)th	'water'	ka(1)to(3)ng	'he counts'
no(1)tse(3)ng	'ice'	o(3)ka(3) nza(1)ko(3)	'he slept'
i(1-3)kh	'lettuce'	a(1)tne(3)	'house'
ko(3)k si(1-3)th	'potatoes'	ti(3)ti(1-3)n	'pocket'
so(3)ni(1-3)	'tomato'		

na(2)ne(3) ta(2)ngi(3)so(3) ko(1-3)n
'A woman went to the store'

i(3)ta(3) no(2) ta(2)ngko(1) 'Do you sell cake?'

si(3) ka(1-3-2) / sa(2)so(3)t ni(1-3-2)th
'Yes! This one is very good!'

ki(3) na(2)to(3) ko(2-1)
'Are these oranges sweet?'

(' =stress; numbers in parentheses are pitches, 1=high)

In this data, it can be seen that declarative utterances (including the first set of words said in isolation) end with a 1-3 pitch downglide. This would be

considered a primary feature of a high-level phonological phrase. Phrases contrast by an ending pitch — there are discernable contrastive meanings when ending in 1-3, 1-3-2 or 2-1. Stress would be analyzed as a feature of words, occurring once per word. Pitch also functions at the word level. The nuclei of phonological words bear stress and bear a higher pitch than their margins (unstressed syllables) — unless occurring word-finally, where phrase-level intonation prevails. This is but a brief illustration of how suprasegmentals can be analyzed as features of phonological units.

I cannot emphasize enough the forward-looking aspects of this approach. Much of what Pike proposed is now being propounded by others — almost invariably, however, without mention of Pike's previous work. (I recently checked more than a dozen volumes on current phonological theory, published during the past decade, and failed to find one reference to Pike's tagmemic phonology. In fact, the only work of Pike's referred to be those scholars is the seminal article, written by him and Eunice Pike, entitled "Immediate constituents of Mazateco syllables" [1947]. A number of current approaches do, however, acknowledge some indebtedness to J.R. Firth — as does Pike.)

A number of contemporary phonological theories have components which are, as a minimum, compatible with Pike's tagmemic phonology. Autosegmental phonology, for instance, with suprasegmental features (on separate tiers) being mapped on to syllables, is one such. Another point of agreement between those two theories is via the possibility of consecutive vowels filling either one or two vowel nuclei slots and the possibility of one consonant filling slots in two consecutive syllables. (See Clark & Yallop, 1990:344-47.) The latter suggestions were made by Pike many years ago.

Metrical phonology, also, in its study of stress patterns and its interest in syllables and feet and in the assignment of stress at syllable, foot and word levels seems to be also compatible with tagmemic phonology at these points (Clark & Yallop, 1990:48-49). Lexical phonology also seems to have "rediscovered the phoneme" and the phoneme is considered to be the smallest unit in the tagmemic phonological hierarchy. Clark & Yallop (1990:356), in predicting future developments in phonology state: "If Goldsmith (1989) is right, recent trends in autosegmental, CV, metrical and lexical phonology...are converging towards a new generative model. This model will be radically different from SPE in a number of respects, but perhaps most fundamentally in its concern with structures such as syllables and feet, and in the shift towards sophisticated representational models (especially multitiered and hierarchically organized structures.)" This sounds very much like tagmemic phonology, and I trust that diligent phonological scholars looking for further insights will turn to Pike's later studies — and not only to his earlier ones.

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III

GRAMMAR AND SEMANTICS

SYNTAX: REALITY OR ILLUSION?

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From their beginnings, models of linguistic systems have incorporated tactic patterns of various kinds. Stratified models have included tactic patterns for syllable structure, word structure, phrase structure, clause structure, and larger structures. In relational network notation, each tactic construction can be represented by a nection (Lamb 1987). The tactic pattern for a given level is then an interconnected network of such nections. Such patterns have been named in accordance with the level at which they were connected, 'phonotactics', 'lexotactics', etc. (Lamb 1966, Lockwood 1972).

The concerns of this paper, however, are not specific to relational network notation. They apply to any system or model that makes cognitive claims --- to any system or model that represents itself as psychologically realistic. In models that use rules instead of networks, it is customary to have rules for syntactic constructions.

I will use the term 'construction' for a type of structure that specifies combinations by means of tactic classes, whether described by means of a rule or by a nection of a relational network or by a tagmemic formula. For example, a tactic construction of Adjective followed by Noun covers a large number of combinations, one of which is 'black cat'. A construction of Adjective followed by '-ness' covers one combination for every adjective. Every instance of a particular adjective with '-ness', such as 'happiness' may be called an instantiation of the construction. Thus 'black cat' is an instantiation of the Adjective-plus-Noun construction.

Now, for any construction there are instantiations that must be assumed to have been learned as units if we are to be cognitively realistic. For example, 'happiness' is surely one such unit for most English speakers, simply because it has been heard so many times. Such a unit can be called a lexicalized instantiation. In some terminological systems it would be called an idiom, while in others the term idiom would be reserved for those lexicalized instantiations whose meanings are not fully predictable from those of their constituents. I will adopt the latter policy here, since otherwise the term 'idiom' would be synonymous with 'lexicalized instantiation'.

If it is objected that 'lexicalized instantiation' is too long and cumbersome for something of such importance and widespread occurrence, then it may be replied that we have shorter terms available: 'lexeme' for lexicalized instantiations at the lexemic level, 'phoneme' for lexicalized instantiations at the phonemic level, and so

forth. It has become pretty customary to recognize lexemes of different sizes, so that 'hit' and 'hit the sack' are both called lexemes, although one contains the other as a constituent. At the phonemic level, the corresponding practice has not become customary, but it might be a good idea. Thus, lexicalized instantiations of the phonotactic construction of syllable-initial stop plus 'r' of English include 'kr-', 'tr-', and so forth, and so such combinations could be called phonemes. This way of using the term phoneme has an important precedent in the work of Adolph Noreen (1903-18), an early proponent of stratified grammar. We can distinguish phonemes of different sizes, when necessary, by calling them 'segmental phonemes', 'cluster phonemes', 'syllabic phonemes', and so forth; just as we use terms like 'phrasal lexeme', 'clausal lexeme', and so forth. We also have the term 'complex lexeme' for any higher-level lexeme, and so we could also use the term 'complex phoneme' in the same way, *mutatis mutandis*.

It is important to observe that complex lexemes must be recognized in a cognitively realistic model regardless of whether or not they are semantically transparent, for semantic obscurity is only a sufficient criterion for such recognition, not a necessary criterion --- complex lexemes may or may not be semantically obscure. The aim of a cognitive model is to represent the knowledge of the speaker, and it would be a gross misunderstanding of the human mind to suppose that it does not remember combinations which have been encountered repeatedly. The fact is that it does so with great facility, much more easily than it calculates.

In the life of a complex lexeme, the process of its lexicalization precedes that of taking on its own semantic identity. As a result of repeated use, it becomes remembered and thus represented as a unit in the linguistic systems of people using it; and after it is so lexicalized there is nothing to prevent it from taking on a life of its own. Thus in its further development a complex lexeme may go through a phase of losing some of its semantic transparency --- like 'woodpecker' and 'hit the sack', for example --- after which it might go on to become still less transparent. The elusive property of transparency comes in degrees, of course. It would be difficult to maintain that at least some small degree of lack of transparency does not begin to be characteristic of any complex lexeme soon after it becomes lexicalized, since it can take on a life of its own as soon as it becomes represented as its own unit in the system.

On the other hand, because of the inertia factor in linguistic change, which keeps changes from occurring too rapidly for the maintenance of communication among members of a community, many if not most complex lexemes tend to retain a fair amount of semantic transparency over long periods of time. And so we have, for example, the still transparent 'happiness' after perhaps hundreds of years; alongside the quite obscure 'understand', also some hundreds of years old, and 'computer', already greatly changed in its semantic functions in just the last few decades, along with such newcomers as 'disk drive' and 'operating system'.

By the way, the principle that lexemic and phonemic combinations become remembered as such upon repeatedly being encountered is not being claimed just for linguistic systems. Rather, it is a general property of the automatic functioning of our mental systems to remember combinations that have been experienced repeatedly, no matter what medium they are expressed in. This general property of mind also applies, for example, in the visual system. When we see something, we

tend to see it as like other things we have seen before, so that its recognition is simultaneously another occurrence of those visual percepts; the result over time is that our visual systems are full of representations of combinations of visual features that have been recognized repeatedly. We commonly call them images.

Specification of how tactic constructions, however described, are interconnected with their instantiations has been a continuing problem during the entire short history of relational network theory. Whether other schools of thought have been troubled with this problem I don't know; if they have, it has not come to my attention. It may be that those who use different kinds of notation for seemingly different parts of the linguistic system --- viz. syntax as opposed to lexicon --- have thereby kept this problem hidden from their awareness. Also important is the fact that other schools have tended to overlook the great importance of lexicalization and the huge quantity of lexicalized instantiations in the lexicon, mistakenly thinking that such combinations can be fully accounted for by the syntax.

We now come to the heart of this paper: I would like to propose the possibility that new combinations, for example new complex lexemes, are formed not as instantiations of tactic constructions at all, but rather simply by analogy with previously existing lexemes. And if that is the case, then there is no need at all for syntactic constructions in a cognitive system!

This idea is best explained with the aid of some examples. We can find examples of newly formed combinations in previous paragraphs of this paper. Perhaps the most pertinent is the term 'complex phoneme' proposed for lexicalized combinations of the phonemic level. It is, as stated, formed on the analogy with the term 'complex lexeme'. Now this is one I formed myself, and my impression of the mental process used is that I formed it simply by using 'complex lexeme' as an exemplar and substituting 'phoneme' for 'lexeme'; not by using any syntactic construction. Similarly, you can make your own guesstimation of whether, upon hearing the term, you didn't just interpret it on the basis of 'complex lexeme' with substitution of 'phoneme' for 'lexeme'. If so, no syntactic construction was needed for the interpretation of that new combination.

Another term occurring earlier in this paper is 'lexotactics'. It is one which I first formed some twenty five years ago, on the analogy of 'phonotactics' and 'morphotactics'. As far as I know, the term 'phonotactics' had been coined some years earlier by Charles Hockett on the analogy of 'morphotactics'.

In late summer of 1990, President Kurt Waldheim of Austria went to Baghdad to visit Saddam Hussein in order to obtain the release of some Austrians who were being held as hostages. At that time people were comparing Saddam Hussein to Adolph Hitler. According to Jay Leno on the Johnny Carson Show, Waldheim said to Saddam Hussein, "I knew Adolph Hitler. Adolph Hitler was a friend of mine. And you're no Adolph Hitler!" Now, did Jay Leno use syntactic constructions to form this text, or did he not just use the well-known statement by Senator Bentsen to Senator Quayle, with substitution of 'Adolph Hitler' for 'Jack Kennedy'?

Now we may consider a more critical question: What about when Senator Bentsen formed his statement? Here there was no exemplar for the whole thing; but there were exemplars for its parts. For the first part, "I knew Jack Kennedy" our mental

systems have countless prior statements of the form "I knew ..." and "I know ..." to serve as exemplars. And so forth.

If some new combinations can be accounted for in this way, as analogical formations, as seems obvious from these examples, should we not consider the possibility that all new combinations are so formed? If so, then there is no need for tactic constructions.

At this point it is important to be aware of the contrast between the cognitive and taxonomic approaches. Whatever we may conclude about whether it is reasonable to suppose that a cognitive model has tactic patterns has no relevance for the taxonomic approach, and vice versa. For taxonomic linguistics --- a worthy pursuit, by the way, not deserving of the criticism that has been levelled at it by generativists (who themselves are really taxonomists anyway) --- the aim is to identify units in linguistic data and to classify them. It seems altogether clear that syntax is important for taxonomic linguistics, since we do find recurrent patterns of combinations in linguistic data. That is all that is required for the recognition of such a thing as syntax in taxonomic linguistics. But that is not our concern here.

For cognitive linguistics, we are asking different questions. We are not just classifying segments of data, we are asking about the mental system that enables a person to produce and interpret new combinations. For most linguists this different orientation is still somewhat new and unfamiliar. Even though the term 'cognitive' is being used with ever greater frequency, most of its uses are really in the context of just another version of taxonomic linguistics. For example, some people think that if they are talking semantics, that makes them cognitive --- supposing that semantics must be cognitive, by its nature. They seem to suppose that semantics deals with "mind stuff", while phonology, for example, is dealing with something else, sounds of speech. But from a true cognitive point of view, semantics is no more cognitive than phonology. Behind both the semantic and the phonological patterns observed by taxonomists there have to be the mental systems that give rise to such patterns.

Syntax got into linguistics as a taxonomic device, and it crept along from there into cognitive linguistics but perhaps without proper credentials. From a taxonomic point of view, as opposed to a cognitive one, syntax may be quite useful. But such taxonomic devices, while not to be belittled, need not have any direct correlates in a cognitive model.

According to the hypothesis of analogical syntax, people interpret and form new combinations simply by using a universal process of analogy, based on previously learned combinations as exemplars. The term 'universal' here means not just universal for language: The process of forming and interpreting new combinations is a quite general mental ability, used in a wide variety of modes of behavior and perception. In fact, it extends beyond humans to other animals, as we can easily observe that they too are able to cope with new combinations and situations on the analogy of previously experienced ones.

If this hypotheses is correct, syntax may be considered an epiphenomenon from the point of view of cognitive linguistics. (But we could still say that some kind of tactic structures are be present in some form in the minds of linguists who believe in

them and would therefore not be totally devoid of cognitive reality, since the minds of those linguists are real.)

Now, syntax involves sequence and categories. In order to explore the hypothesis of analogical syntax, we must therefore ask questions about these two phenomena:

- (1) How is sequence to be accounted for?
- (2) what are the properties of the cognitive system which correspond to the syntactic categories that linguists have posited?

First, let us consider sequence. We can accept, as has always been assumed, that lexicalized combinations include among their properties the specification of the ordering of their components --- so for complex lexemes the sequence is already there. For new combinations being newly formed by the speaker, their sequence is handled as being just that of the exemplar, with substitution of a new part in the same position as the corresponding part of the exemplar. This is automatic since the substitution includes only that which is different.

Thus sequence in itself is taken care of. The only question concerning sequencing that is of concern here is that of whether there are structures for sequences of categories. If a cognitive linguistic network has direct representation of sequences of syntactic categories, then it needs to have some direct representation of those categories. Thus our real problem is with syntactic categories, and the question to be asked is, do syntactic categories have cognitive reality? They are needed, if at all, for the treatment of new or unfamiliar combinations, those which have not yet become lexicalized in the cognitive system being modelled.

Syntactic categories have been used for three functions:

- (1) disambiguation, where the ambiguous item belongs to two or more categories, only one of which fits the context;
- (2) interpretation of combinations in which the order of the constituents contributes to the meaning; e.g., 'Joe kissed Helen' as opposed to 'Helen kissed Joe';
- (3) production of new combinations, for which the constituents must be produced in a linear order.

A possible fourth function, recognized by some, would be the rejection of ill-formed combinations, but from the cognitive point of view it is actually not very realistic to recognize the existence of such things. They occur only as made up combinations, made up by generative grammarians for their unusual purposes. In real life they come up only in connection with disambiguation, where the more ill-formed of a set of multiple possible interpretations are rejected, while the sentence is accepted in its most well-formed interpretation. In real life, if an

incoming sentence is not readily interpreted by the system, then the system does the best it can, searching longer than usual for a suitable interpretation and possibly adjusting itself thereupon. What might appear to be an ill-formed text for a less cognitively oriented approach is something real and is coped with accordingly. It might be the production of a foreigner or a young child or an intoxicated person, or the creation of a humorist or poet, and so it is accepted, if with some difficulty; or it might contain some new lexeme or some new use of a lexeme, or less often some new syntactic device, in which case it leads to a learning operation on the part of the receiver. In neither case is it rejected. We conclude that in ordinary life, as distinguished from mathematics, computer science, and generative grammar, ill-formed sentences do not occur.

For a cognitive model, then, syntactic categories need to be present, if at all, only for the purpose of allowing the system to interpret and produce new combinations.

Let us consider this example, from an article in the New York Times of March 7th, 1991, describes, in the words of its headline, a "Fireball Across the Sky". According to the account,

The fireball appeared at about 3 A.M., and in minutes a pilot was telling the Philadelphia International Airport that it was "the mother of all meteors."

Now, did that pilot form the expression "the mother of all meteors" by the use of syntax, or did he not rather simply take the form "mother of all battles", often heard during the two or three preceding weeks, and simply substitute 'meteor' for 'battle'? For the formation of new combinations, it is only necessary to make appropriate substitutions in the exemplar. If there are no previously learned combinations to function as exemplars, the system would be unable to form the new combination successfully, and in this respect it would seem to mirror what happens in the case of actual human beings.

Similarly, in the process of interpretation, the linguistic system encountering a new combination usually already has lexicalized combinations involving similar constituents. It can therefore use these similar combinations as exemplars for the interpretation of the new combination. As with the production of new formations, it is only necessary to substitute the parts of the new combination for those of the exemplar lexeme in the corresponding positions. In cases which are not of this simple kind, that is, where no exemplar composites have been learned previously, then the model would be unable to interpret the new combination; and in this behavior it would doubtless be cognitively realistic.

Our next step in understanding how new combinations can be produced and interpreted by the use of exemplars with substitution is to look more closely at how exemplars are chosen. The key consideration here appears to be similarity. In production, the speaker uses as exemplars those conceptual configurations which most closely resemble the current one. There can be more than one exemplar for a given situation if we assume parallel processing, since in this case multiple exemplars can operate in parallel.

In the simple and usual cases the exemplar(s) will be identical in all but one

concept, and that one will be similar to the new one to be substituted. There, similarity can be specified on the basis of shared features or properties. Similarity thus comes in degrees, as properties can be shared to varying degrees.

At this point it is appropriate to point out the advantages of using a network approach for conceptual structure, since a relational network allows a concept

- (1) to be connected with indefinitely many properties,
- (2) to have connections of different weights or strengths relating to different degrees of importance of properties in relation to a given concept; and
- (3) to easily undergo adjustments such as addition of new properties and adjustments of weightings.

By virtue of such flexibility of connectivity, concepts have degrees of similarity to other concepts ranging from very similar to slightly similar to not very similar, and so on. We may say that the use of very similar exemplars is the usual case, while the use of relatively less similar ones is somewhat more creative, often what would be called metaphorical, and the use of very dissimilar ones is more creative and less frequent in occurrence.

For example, the formation of 'sarajevo' for "Good-bye" (Eble, this volume) seems to be based on the exemplars 'sayonara' and 'hasta luego', where we have only rather weak phonological connections, and no conceptual connections at all.

From these considerations we can see that the analogical approach to handling syntactic phenomena allows the linguistic system to be quite flexible.

Thus if the proponent of syntactic categories were to argue that you can't handle syntactic phenomena without syntactic categories, our first response has to be, "You can't handle syntactic phenomena *WITH* syntactic categories!" By their nature, syntactic categories fail to provide for the flexibility of syntactic patterning that we observe in real life (Hockett 1966). But the analogical approach does provide for just the flexibility we need.

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SYSTEMIC LINGUISTICS IN A FORMAL PERSPECTIVE

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1.0 Overview. One of the problems in the handling of descriptive statements in models as various as stratificational grammar, transformational-generative grammar or systemic-functional grammar is the temptation to generalize on paradigmatic relations without systematic reference to the whole range of realizations which the generality purports to abstract from. One method for controlling descriptive generality is to computerize the model in order to facilitate the output of logical states which the model represents. This method applied to published network models for paradigmatic relations in the systemic-functional tradition demonstrates that a number of accepted networks suffer from overgeneralization made manifest in a combinatorial explosion of logical states. This can be illustrated by a computer assisted examination of networks for English transitivity and voice and for the English nominal group.

2.0 The problem. For systemic-functional linguistics, some or all of the strata of language can be modelled with networks of paradigmatic relations (Halliday 1973: 55; Fawcett 1980: 25-45, 51-53). Two aspects of concern in networks are delicacy and simultaneity. Delicacy in paradigmatic description is a taxonomic relationship among classes of successively decreasing generality. Simultaneity is a combinatorial relationship among sets of distinctions which have a common environment, i.e., among systems which have a common entry condition (Berry 1975/89: 177 ff., 181 ff.). Writers of systemic descriptions sometimes risk fate by presenting their model as individual systems or at best subnetworks, argued for in isolation. At a final stage of exposition, the linguist wires together the bits and pieces into a general network in which systems hitherto regarded without a formal context now enter into relations of delicacy and simultaneity with many other systems. In the systemic-functional terminology, each logical state of the resulting network, i.e., each logical path through the network, is termed a 'selection expression'. Some published networks appear to have many more selection expressions than the data warrants. Examples taken from two otherwise admirable introductions to the field of systemic linguistics include a network for transitivity and voice in the English clause (Berry 1975/89: 189) and a network for the nominal group in English (Fawcett 1980: 207 ff.).

3.0 The resources. To examine this problem, the authors have computerized a number of published system networks for testing. The project concentrates on

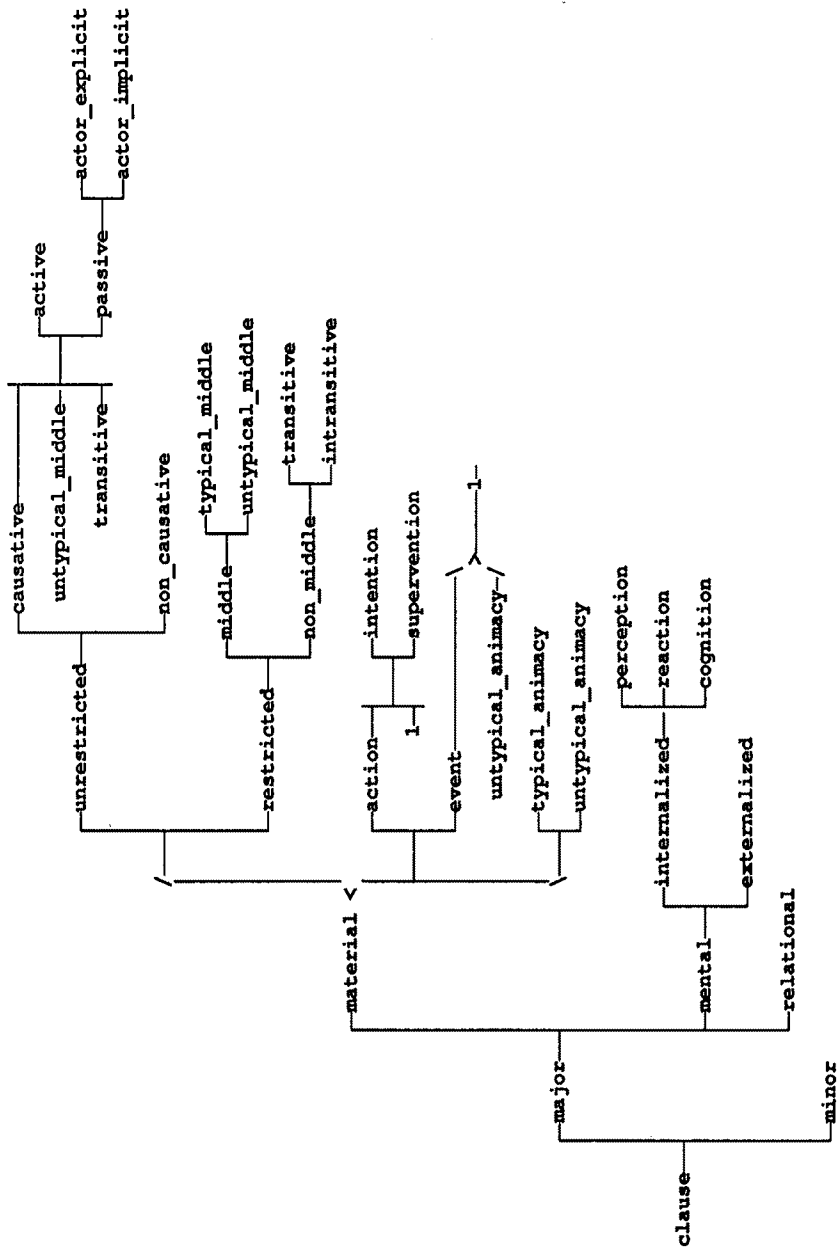
the 70s, a decade rich in network model exposition. From the systemic-functional bibliography for the 70s, including books, articles, theses and working-papers, approximately 250 network models representing 19 authors from Berry to Winograd have been collected (by Ms. Janine Schulz, York University). These networks have all been keyed in and selectively analyzed with the SYSPRO software (© M. Cummings 1988/1990) to produce computer graphic output of the network formalism and selection expression output for each logical state of the network.

The SYSPRO program for VAX/VMS or IBM compatible microcomputers was originally intended to elicit the design of system networks from the user in the course of an interactive dialogue, store the networks as PROLOG rules, and return the network as an output in the form of the original systemic graphic notation, or as selection expressions (Cummings 1987, 1990). Later development extended the functions to include interactive preselection of features, logical testing of entry conditions, and interstratal realization (Cummings 1989a, 1989b, forthcoming). Both of the networks discussed in this paper were examined in the form of SYSPRO generated selection expressions, and are represented here in the form of SYSPRO graphic files, reedited with WordPerfect macros.

4.0 A network for transitivity and voice. The SYSPRO graphic on the following page reproduces Berry's transitivity and voice network (1975/89: 189), with some abbreviation of feature labels.¹ The model is loosely based on Halliday (1967, 1968; cf. 1985: 101 ff., 144 ff.). The initial distinction in clause features is between explicit process (major) and implicit process (minor). Major clauses at greater delicacy are distinguished by process types. Material processes are distinguished as either ergative type (unrestricted as to the number of participant roles) or transitivity type (restricted either to one or to two participants). Simultaneously these processes are distinguished as either action type (typical actor or agent is animate) or event type (typical actor or agent is inanimate) and by typicality of actor's or agent's animacy (typical/untypical).

The ergative process type, unrestricted in number of participants, has more precisely either two participants (causative: 'John opened the door', 156) or one (non-causative: 'The door opened', 156). The transitivity process type is typically restricted either to one participant (middle) or to two participants (non-middle). At another step in delicacy, a middle process may untypically have two participants, goal as well as actor ('Mary waltzed her mother around the room'). Non-middle transitivity processes may have both actor and goal participants explicit (transitive) or leave the goal implicit (intransitive).

Three features defined so far imply two participants: causative, untypical_middle and transitive. These are accordingly disjunctive entry conditions to the voice system. The feature passive implies that the actor is realized as subject in the case of causative processes (the other role being agent); in the case of untypical_middle and transitive processes, the subject is the goal (the other role being actor). At the last stage of delicacy, these other roles are



Transitivity and voice network
(Berry 1975/89:189)

either explicit or implicit.

In the simultaneous distinction between action material processes and event material processes, the former suggests a further distinction between intentional actions ('John jumped from the window') and unintentional, i.e., superventional actions ('John fell from the window'). However, since both action and event processes may combine with actors or agents having untypical animacy, an event process with an animate actor must also be subject to the intention/supervention distinction (Berry 1975/89: 149-161, 177-190).

The network thus presented has 90 selection expressions. For the purposes of this paper it should be noted that the subnetwork starting with the unrestricted/restricted system has 12 subexpressions, and that the other two simultaneous subnetworks dependent on the term 'material' combine for 7 subexpressions. Although Berry's method of exposition is excellent in all other respects, it presents the data for most systems and their dependencies in isolation from simultaneous subnetworks, leaving it to the reader to infer what data might be accounted for when simultaneous combinations of features are taken into account.² The question at this point then is whether or not all the 84 selection expressions containing the feature 'material' are realized in English clauses.

5.0 Combinatorial problems. The first of three problems considered here involves selection expressions containing the features *actor_implicit*, and intention or supervention. Of the 12 subexpressions in the first subnetwork dependent on 'material', 3 contain the feature *actor_implicit*. These combine with either intention or supervention in 6 of the 7 subexpressions generated by the other subnetworks dependent on 'material', for a total of 18 selection expressions. It seems fair to ask, however, if a clause without an actor or agent can admit of the distinction between intention and supervention. None of the examples offered for intention/supervention are passive (152), and none of the examples for *actor_implicit* are labelled for intention/supervention (159). If the animacy or metaphorical animacy of the implicit actor or agent is to be inferred from adjunctival phrases like 'intentionally' or 'by accident', or from the general discourse, perhaps transitivity and voice should be explicitly described as realized by more clause functions than participant and process, or as a reflex of discourse. Even this solution would not account for data in which no inference from other clause functions or from discourse is possible.

The second problem similarly involves *actor_implicit*, this time in combination with features *typical_* or *untypical_animacy*. All 21 selection expressions containing the first feature also contain one or the other animacy feature. It also has to be asked if a clause without an actor or agent can have an animacy feature to begin with. None of the examples offered for animacy features are passive (155), and none of the examples for *actor_implicit* (159) are labelled for animacy.

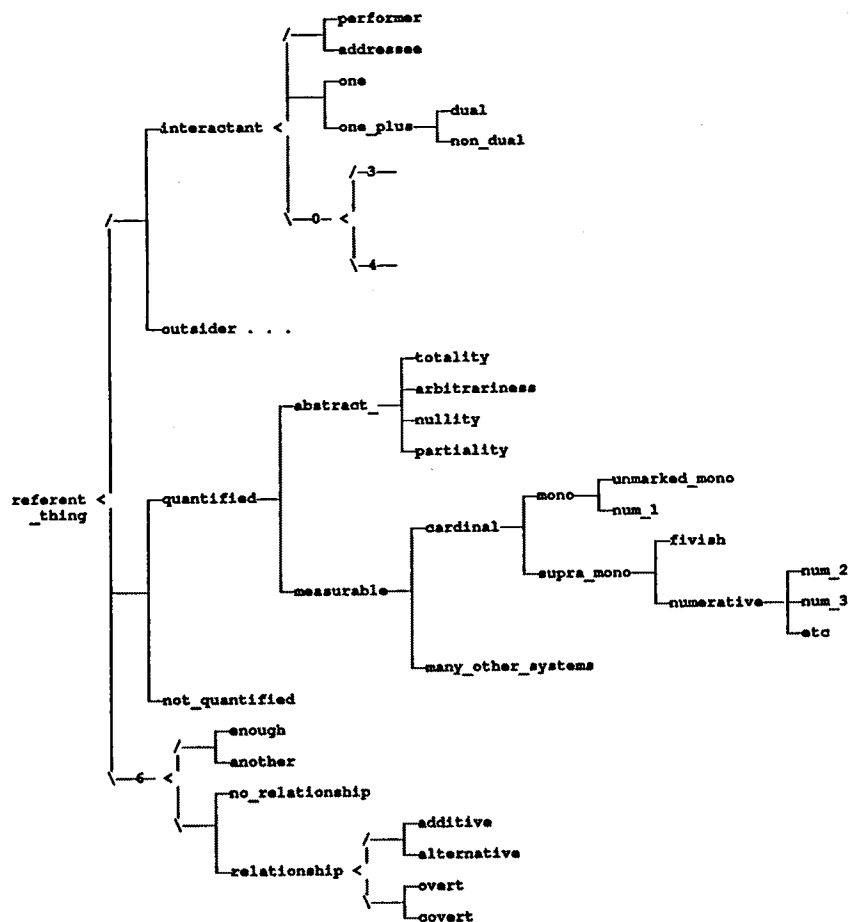
The third combinatorial problem involves selection expressions containing the features *action*, *untypical_animacy* and either intention or supervention. All 12 of the first set of subexpressions combine with the 2 of the second set of

subexpressions which contain these features. The single example offered for action combined with untypical animacy (155: 'The door waltzed open') is unlabelled for the intention/supervention distinction, and the examples for intention/supervention are otherwise unlabelled (while obviously implying action with typical animacy, 152). Action with untypical animacy however implies an inanimate actor or agent, which seems hard to combine with the intention/supervention distinction. Further problems with this description of transitivity and voice may be raised, but the three problems discussed here seem mainly attributable to the overgeneralization implicit in the wiring of the final network model.

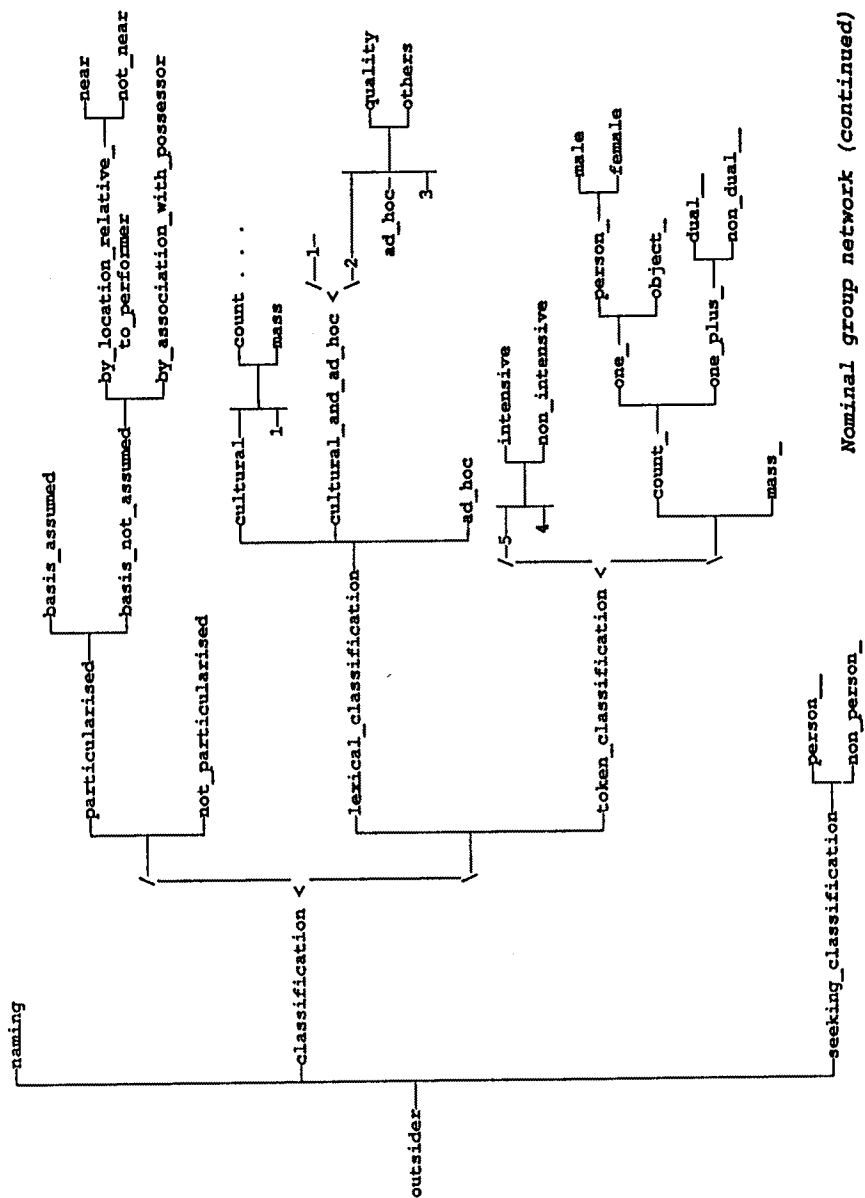
6.0 A network for the nominal group. Fawcett's network for the semantics of the nominal group is reproduced in a SYSPRO graphic in stages on the following two pages (truncated for convenience at the features 'cultural:count' on the second page). Like the previous network it is presented as individual systems and subnetworks (1980: 206 ff., especially 207, 210, 218, 223, 225, 228), with explicit directions for wiring all the parts together into one general network. The part reproduced here, with 'etc', 'many_other_systems' and 'others' interpreted as individual features, and reentries disregarded, implies a total of 15,240 selection expressions.

The three initial simultaneous systems cater to interactant roles in discourse, quantification and logical relationships. The last and simplest of these itself begins as two simultaneous systems. The first offers a choice between one or one more (paratactically ordered) simplexes. If feature 'another' is chosen, then the whole network is reentered. Reentry has no syntactical implication in the strict sense: reentry implies constituency without ordering. The second simultaneous system offers a choice between a simplex related to another and previous simplex, and one without relation. For the first pass through the network the choice of no_relationship is required, so that the systems are not truly simultaneous. If the choice 'relationship' is made, then the relationship to be expressed may be either conjunctive (additive) or disjunctive (alternative), and it may be overtly realized by conjunctions, or covertly realized by punctuation (226-229). One of the limitations of this account of nominal group logic is that paratactic relations in reality are not always perfectly serial, but sometimes embedded, as in 'toast, eggs and bacon, and coffee'. With its present wiring, the logic subnetwork will generate this text as if it were a uniformly serial succession of conjunctive parataxes, usually overt, but once inexplicably covert.

The subnetwork for interactant roles starts with a distinction between interactant, that is, an immediate party to the discourse, and outsider. These are relative terms because of course the outsider may belong even to the immediate context of the discourse. The first of four simultaneous systems dependent on the interactant choice distinguishes between performer, or so-called '1st person', and addressee. The number system distinguishes one and more than one, from which follows a further choice between dual number (e.g., 'both of you') and non-dual plurality. The wire labelled '3' leads on the following page to an 'ad



Nominal group network
 (Fawcett 1980: 207, 210,
 218, 223, 225, 228)



hoc lexical classification' system which accounts for overt or covert predications in the nominal group; the first among several choices is 'quality'. The wire labelled '4' leads on the following page to a distinction between intensive and non_intensive, accounting for the semantics of all forms realized with '-self/-selves', whether intensive pronouns or various gradations of reflexive pronouns. Each of these systems may also be entered from features dependent on outsider (206-209, 213-214, 215 ff.).

One problem with this subnetwork is the absence of an alternative to ad hoc lexical classification of interactant roles, since wire '3' leads inexorably to the realization of some modifier. Another limitation seems to stem from the process by which English non-reflexive intensives are generated. The realizations offered as examples are all single-word items, e.g., 'myself', which may serve either as a reflexive or as the intensive part of a non-reflexive group, e.g., 'I myself'. This non-reflexive group would appear to require two passes through the network, one to select features including performer and non_intensive, the second to select features including performer and intensive. The problem lies in the logical relationship which governs the reentry. In the logic subnetwork, only coordination permits reentry, but this is neither a conjunctive nor a disjunctive relationship. It may be a species of apposition, which could be included in logical relations. Perhaps it would be better to handle non-reflexive intensives by distinguishing reflexives and non-reflexives as subclasses of intensive and offering separate realization rules for each. Non-reflexive intensives then could be generated by a single pass through the network and a realization rule that specified structures at head and postmodifier.

7.0 Continuation of the network. The choice of outsider interactant leads to the third subnetwork to be considered, the 'redundancy balance' network depicted on the second page of the pictorial, with initial choices 'naming', 'classification', 'and seeking_classification'. Fawcett here represents a gradation from unique and full identification in discourse context to confessed ignorance of identification ('Who?', 'What?'), the middle choice leading to degrees and types of specification. The choice between token_ and lexical_classification is a choice between meanings which can be fully realized in pronominal groups and those which can be realized only by noun-headed, adjective-modified or other predication groups. Further choices in token classification are roughly isomorphic with the syntactic classification of 3rd-person pronouns, with the usual dual/non_dual distinction refining the concept of plurality.

Lexical_classification on the other hand is graded from cultural to ad_hoc, the former pertaining to the culture-specific distribution of meaning among noun-word realizations. Ad_hoc refers to the myriad of predication combinations in nominal groups which are highly situation specific. As previously indicated, the ad hoc systems are shared between lexical_classification and the interactant choices, and the 'intensity' system is shared between token_classification and the interactant choices. Simultaneous with the lexical_/token_classification system is the 'particularization' system, which is

roughly isomorphic with the syntax of nominal group deixis. Choice *not_particularized* is like generic, *basis_assumed* is definite ('her', 'the girl', 210), and *basis_not_assumed* leads to conventional distinctions among possessive, 'near' demonstrative and 'far' demonstrative. The 'cultural classification' subnetwork has been limited here to its initial distinction between count and mass (209-219, 222-223).

Apart from conscious omissions which could be handled in connection with redundancy balance, e.g., indefinite pronouns, relative pronouns and the 'ad hoc' systems, this subnetwork appears to suffer from combinatorial inconsistencies. The given wiring makes *token_classification* and the 'ad hoc' choices alternative dependencies, which seems to screen out data like 'she in the middle' and 'they who are prepared'. Another possible overlap with the 'lexical classification' systems is suggested by realizations of *seeking_classification* with 'who' or 'what' as modifiers, e.g., 'What child is this?'. Making the 'particularization' systems fully simultaneous with the *lexical/token_classification* systems seems to lead to combinations of *not_particularized* and various pronoun-realized choices of *token_classification*, for which the data is not obvious. The choices in the *near/not_near* system usually realized by 'this' and 'that' seem equally hard to combine with the choices dependent on *token_classification*.

The last of the three initial simultaneities on the first page of the network pictorial is the quantification subnetwork. Terminal features representing abstract quantity are totality ('all'/'both'/'every'), arbitrariness ('any'/'either'), nullity ('no'/'neither') and partiality ('some'). The *unmarked_mono* feature of measurable quantity is realized by the indefinite article and the reduced form of 'one'. Feature 'fivish' is realized by 'several' and other terminal features are obvious (224-226).

However, since the quantification system and all its dependent choices are fully simultaneous with the interactant system and all its dependent choices, more combinatorial problems make an appearance. One of these is the combination of cardinal in quantification with mass either in lexical or in *token_classification* (realized by 'it'). Another such problem is the combination of cardinal with naming, without of course the reduction of the name to a common noun. Since abstract and measurable are exclusive alternatives in the quantification system, how does measurable combine with the dual choice in either of the two *one_plus* systems, since dual seems also to imply choices of totality, arbitrariness and nullity? For that matter, how does the quantification choice 'partiality' combine with dual, since it is an alternative to totality, arbitrariness and nullity in the abstract quantification system? Another and similar problem is the combination of *supra_mono* in the cardinal system with the choice of 'one' in either of the two places it occurs in the interactant system subnetwork, at least without resort to metaphor.

NOTES

1. The graphic output is limited to ASCII characters: hence curly brackets are stylized, links wired between brackets are numbered and complex entry conditions are represented by repeated feature labels or link numbers.
2. This may account for the retention of the labels 'actor_explicit' and 'actor_implicit' from the original discussion of voice in the context of the transitivity type even when the labels are applied equally to the agent role.

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CONSTRAINTS IN UNIVERSAL GRAMMAR: CONSEQUENCES AND OBJECTIONS

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0. Introduction

Within the architecture of formalized scientific theories it is possible to find both positive and negative constraints. The positive constraints are consequences of the theory's set of axioms and postulates. Consider a theory that assumes the axiom of identity and has a statement like $a = b$ as a postulate. We may conclude that a and b are a single item in the theory. This conclusion follows trivially from the identity axiom and the postulate, but it illustrates what I call positive constraints. Positive constraints are in general implicit in the postulate structure of a theory.

Negative constraints, however, are of a different sort. They are postulated to avoid some kind of potential difficulty. Russell's Theory of Types, for example, has a negative constraint forbidding direct relations between elements of the same type. Russell incorporated this constraint to avoid certain paradoxes, a laudable goal. Such *a priori* goals in theory construction are a valid and plausible motive for negative constraints.

Linguistic theories also have positive and negative constraints. For example, Hockett (1954) established his famous typology of descriptive linguistics on the basis of the distinction between Item and Arrangement (IA) and Item and Process (IP) approaches. Here the distinguishing theoretical primitives are arrangements in IA and processes in IP. Both types of theory have "items," so it would seem that "items" are not a distinguishing characteristic between them. However, an examination of the positive constraints shows that the items in the two cases are not identical and thus are part of the distinction. Items in an IA theory are immutable. This forces the recognition of two items, *sing* ~ *sang*, in an IA description. Conversely, an IP description specifies one item which is changed to another in the appropriate environment: *sing* --> *sang*. So an IA description has two items and an IP description has one item and the process; *sang* is not an item of the IP description, but a product of the operation of the process. This reduction in the number of items in an IP description constitutes a positive constraint on it.

There are also negative constraints on both IA and IP theories of that era. Such an example can be seen in the treatment of zero items (or of zero as an item). IA models (e.g. Nida (1949) reject the use of zero unless it is semantically significant and fills a structural pattern. Chomsky (1957) rejected the idea of a transformation "dominated by zero" (i.e. $\emptyset \rightarrow A \dots$).

In short, both positive and negative constraints have as acceptable a place in linguistic theories as in any other kind of scientific theory. Many things can be derived from a careful study of a theory's constraints. Gödel's theorem focuses on the conclusions that can be drawn from the consequences of both positive and negative constraints. Positive constraints are worthy of discussion. In the present study, however, I limit myself to negative constraints and their use in contemporary Chomskyan theory (hereafter C-lin), with particular reference to the class of constraints known as Island Constraints. I begin with an outline of the nature of negative constraints.

I. Negative Constraints

Negative constraints traditionally share certain characteristics. For example, Bertrand Russell wanted to use his theory of types to derive mathematical disciplines. Thus he had to accept the axiom set common to all of mathematics, in particular the identity axiom and self-reference. But the combination of identity with self-reference results in the possibility of a

number of paradoxes. An internally consistent theory of mathematics must avoid all paradoxes. Lord Russell decided to apply a negative constraint to his theory which banned direct self-reference. Similarly, the traditional Neo-Bloomfieldian constraints on zero as a descriptive item were simply a variant of Occam's Razor (*Entia praeter necessitatem multiplicanda non sunt.*)

Chomsky's motive for constraining transformations dominated by zero, I am convinced, has a different source. The paleontological stage of C-lin was based on a theory which is fairly tight, from a logical point of view. Chomsky (1957) is careful to keep the generative and transformational portions of the model separate. All generation is in the Phrase Structure Component, and all rewrite rules are in the Transformational Component. Thus the structures are produced in the former and modified in the latter. In this context, the restriction on the use of zero items constitutes an important negative constraint. A transformation dominated by zero would, in effect, create structure. A deletion transformation is the opposite: it essentially destroys structure. An alternating series of these two types of transformations would create-destroy-create-destroy-create ... structure. This produces a kind of statement called a non-convergent function. According to Gödel's theorem, a theory which can form non-convergent functions cannot be proved consistent. Keeping structure-generating and structure-destroying rules separate prevents the formation of this type of non-convergent function.

This particular constraint is strictly in keeping with the traditional form of negative constraints: an *a priori* limitation on a part of the model whose function is determined by a more general axiom which is itself out of the direct control of the theoretician. Like the Syntactic Structures model of C-lin, however, this state of affairs did not last long. By the time SS had evolved into "Standard Theory," the C-lin version of negative constraints had also evolved, beginning with the A-over-A principle.

II. Negative Constraints in Post-Paleontological C-lin

Chomsky's success at attracting adherents also threatened his tight control over generative-transformational theory, hence my use of the looser term Chomskyan linguistics or C-lin. Many critics of C-lin have complained through the years that the transformations used were too powerful, that they could do anything at all. True or not, the perceived power of transformations must have been apparent to those Chomskians who began proposing ad hoc negative constraints. A "syntactic feature" like [- passive] was added to the lexical entry of a verb like *jump* to ensure that *Five feet was jumped by John* is not derived from *John jumped five feet*. These "features" were surely meant as negative constraints, as mentioned above, but they are just as surely a violation of the traditional practice. To his credit, Chomsky has never ceased looking for more general constraints, though the results are far from satisfactory.

The first of the more general negative constraints in C-lin was the A-over-A principle. A-over-A was proposed in Chomsky (1964) for a very limited purpose. Specifically, if there are two possible domains, one within the other (symbolized [_A ... [_A ... _A] ... _A]), a potential ambiguity of reference between the domains is resolved by referring to the dominant domain. A-over-A was supposed to answer a number of problems involving question formation. Specifically, given a sentence like (1) and assuming the proper detail in structural bracketing, it explains why (2a) and (2b) are possible but (2c)-(2e) are not.

- (1) My letter to a friend in Italy got lost.
- (2)
 - a) What got lost?
 - b) What/Which/Whose letter to a friend in Italy got lost?
 - c) What to a friend in Italy got lost?
 - d) To whom did your letter in Italy get lost?
 - e) Where did your letter to a friend in get lost?

Ross (1967) points out that maintaining A-over-A requires very inventive structural

bracketing. In fact, restrictions on reference and "extraction" involve disparate structures, not all of which are subordinated. It is impossible, for example, to question one element of a compounded complement, as in (3).

- (3) Who and Harry got lost?

Thus A-over-A, which deals only with two identical structures, one of which is subordinated to the other, cannot suffice. In light of its (to him) obvious inadequacy, Ross carefully detailed a list of apparently unrelated structures from which nothing could be "extracted" by transformations that involve "movement". Because the structures were unrelated, he had to define a separate constraint for each. He called the class of disparate structures "islands" and the constraints became known as Island Constraints (hereafter ICons).

Meanwhile, Rosenbaum (1967) introduced a typology of transformations based on the domain of operation. He identified three classes of transformations: monocyclic, bicyclic, and unbounded. Monocyclic transformations are intrasentential. That is, they operate within a single pair of sentence boundaries. Passive, reflexivization, and affix-hopping are all presumably monocyclic transformations. Bicyclic transformations operate across exactly one sentence boundary. Equi-NP deletion is bicyclic. Unbounded transformations can operate over an unlimited number of sentence boundaries. *WH*-movement is an example of an unbounded transformation. Despite the fact that both ICons and A-over-A were inspired by limitations on *WH*-movement, i.e. that it is indeed bounded, Rosenbaum's typology enjoyed a certain vogue.

At the same time as Ross was writing his dissertation, Chomsky was formalizing his A-over-A proposal. Though he was aware of Ross's "empirical" (= data-based) objections to A-over-A, he maintained his faith in it. Faith had to suffice: Chomsky had not accounted for Ross's data.

For the next several years the main goal of Chomsky's research in this area was the modification (or "enrichment") of A-over-A to account for Ross's data and the data adduced by others (see especially Postal [1974]). It was some battle.

Chomsky's "victory" in this "battle" is traced to the articulation of the Subjacency Principle (SP) in Chomsky (1973) (van Riemsdijk and Williams [1986:33]). I repeat SP in (4).

- (4) SP: No rule can relate X and Y in the structure
 $\dots X \dots [{}_A \dots [{}_B \dots Y \dots \text{OR} \dots Y \dots [{}_B \dots [{}_A \dots X \dots,$

where A and B are bounding nodes like S, NP, PP.

The idea here had its origin in Rosenbaum (1967). It is that there are two kinds of nodes: cyclic and non-cyclic. Cyclic or bounding nodes have the special property that only one of them can be jumped by a single application of a movement rule.⁶ Apparently unbounded transformations are actually successive applications of a bicyclic rule.⁷ Note also that A and B no longer have to be the same kind of node.

In fact, however, SP alone will not suffice. The supposedly victorious argument of Chomsky (1973) depends on the addition of the Tensed Sentence Constraint (TSC), which says that an NP cannot be extracted from a tensed S.⁸ It soon became clear that TSC, which is a constraint on a constraint, is wrong. Moreover, there is an independent problem with movement. If something is moved, there must either be a place for it to move *to* or the rule itself must create such a place. Creating structure with transformational rules is to be avoided, so empty places must be provided by the generative portion of the grammar. In the X-bar version of Phrase Structure rules, the empty spaces are provided by generating an empty COMPLEMENT before each sentence and an empty SPECIFIER after it.⁹ For the purpose of the discussion of *WH*-movement that follows, only the complement position (CMP) is relevant.

Consider the sentence in (5). The relevant portion of the DS¹⁰ of (5) is given in (6), and the effect of a three-fold application of *WH*-movement to this structure is also shown.

(5) Which books did you say John thinks Bill should read?

(6) [_S CMP you said [_S CMP John thinks [_S CMP Bill should read [_{NP} which books_{NP}]_S]_S]
 <-----<-----<-----
 III II I

The NP *which books* first moves to CMP of its own S, then to CMP of the first-level projection S', finally to CMP of the maximal projection S". In each place it leaves behind a trace element *t'*. This gives the SS in (7).

(7) [_S [which books] you said [_S *t'* John thinks [_S *t* Bill should read [_{NP} *t'*_{NP}]_S]_S]_S]

In (7), *which books* is identified with *t'*, *t'* with *t*, and *t* with *t'*. Thus, step-by-step, *which books* is shown to have been moved from object position of *Bill should read ...* without crossing more than one NP or S boundary at a time. SP is satisfied and the grammaticality of (5) is accounted for.

On the other hand, consider the DS of (1), the relevant portion of which is given in (8). The movement to produce (2e), repeated here for convenience, is also shown in (8).

(8) [_S CMP My letter [_{PP} to [_{NP} CMP a friend [_{PP} in Italy_{PP}]_{NP}]_{NP}] got lost_A]
 <-----<-----
 II I

(2 e) Where did your letter to a friend in get lost?

The first extraction in (8) is labeled I. As I understand it, this movement is legal, because only one barrier is crossed. But the second extraction would have to cross two barriers in a single bound and is blocked. Hence, the non-occurrence of (2e). This and blockages like it justify SP.

III. From ICons to DNA

The above justification for Island-type constraints in general and for SP in particular could be made stronger. It is of necessity sketchy, but it is not intended as a straw man. The chain of reasoning I present is, though weak, accurate. C-linguists accept ICons as a demonstrated or at least a demonstrable necessity. For the sake of argument, then, I accept their conclusion. I now turn to C-linguists' assessments of SP and its consequences.

Now Chomsky originally complained that Ross's ICons are ad hoc. From Chomsky's point of view, SP has a number of advantages over ICons. ICons can be derived from SP. So can most of Rosenbaum's typology of transformations. SP is therefore more general and more abstract than both ICons and transformations themselves.

At the same time, however, SP is still syntactic. The bounding nodes (S, NP, PP) are syntactic, and so is the referential relation that SP constrains. Being purely syntactic, SP is therefore linguistic.

Conversely, SP is so abstract that it is not directly adducible from linguistic data. It has, in fact, been adduced from a study of expected data that do not occur. Developing native speakers do not study the data that do not occur; they are too busy trying to accommodate themselves to the data that do occur. There is thus no way for them to acquire SP. There is an important question in this line of reasoning which has been begged and to which I return in section (V), but the line of reasoning itself is acceptable so far.

The next question is where SP comes from. SP is linguistic but too abstract to be acquired. Being a non-acquired, abstract principle of language, SP qualifies as a part of Universal Grammar (UG), that collection of presumed first principles characteristic of Language and hence, of each and every language. All of UG faces the same problem. None of it can be

acquired from the linguistic environment. In biology, a characteristic like eye color, which cannot be acquired from the environment, is ascribed to heredity. In our increasing sophistication with regard to molecular biology, we now say that it is encoded in the DNA. Thus SP (and similarly all of UG) is hereditary and hence, encoded in the DNA.

However, this chain of reasoning is far from airtight. There are several points at which the argument has serious weaknesses or outright flaws. I turn to them now.

IV. Flaws in the Argument

The flaws in the argument concerning SP are sometimes empirical, sometimes logical in nature. I begin with the empirical problems.

Consider first the conclusion that SP/UG is encoded in the DNA. As a scientific claim, this is very weak. We are in the infancy of decoding the genetic code. The location and architecture of the DNA coding for specific characteristics have been identified in only a very few instances. We actually have not so much as a hint that some portion of a chromosome can be found to have a determinant effect on SP or any other part of UG. This is not to say that the conclusion has been falsified. To the contrary, the conclusion is an empirical claim which we are nowhere near being able to test. In fact, given the present state of molecular biology and the degree of information on DNA that remains to be discovered, the conclusion is in effect presently unfalsifiable. Hence it is non-empirical. Adopting it therefore requires an act of faith, something which should be avoided in science whenever possible.

Now consider what a real genetic characteristic is like. For every "gene" that has been exhaustively investigated and identified, there is a physiological analogue. It might be something as obvious as eye color or something as subtle as a particular hormonal (im)balance, but it is there. Now language is processed in the brain. If SP is a principle of language present in the DNA, then a neurological analogue for it should be present in the brains of all human beings, even before they become language users. No such analogue is known. But its architectural and functional characteristics can be adduced, and a verification of their existence can be sought. Adopting the principle while ignoring its empirical consequences is irresponsible.

To these objections committed C-linguists offer a number of rebuttals: neurological evidence should be treated with skepticism; SP can't be phrased in neurological terms, so neurology is irrelevant; and we don't know enough about neurology to be able to find a particular neurological structure. The problem with these rebuttals is twofold. First, if they are a conclusive refutation of the relevance of neurological data to linguistics, then they are an even better refutation of the relevance of DNA to linguistics, particularly since we know even less about DNA than we do about neurology. Second, given our ignorance here, holding to claims about DNA is again an act of faith, not of reason or science.

To be fair, there is a more global C-lin warning against neurological (and psychological) data. Its explicit history dates back at least to a series of caveats in Chomsky (1973), and it is implicit in the development of the competence-performance dichotomy, to wit: C-lin is not concerned with what goes on in the minds or brains of speakers. Actual language processing and communication are outside the scope of C-lin. I am not sure that this statement ever appears as such in print, but it is an oral commonplace. Still, in either case, it is a patently absurd argument in the context of a theory that claims to deal with "semantic interpretation" and the "meaning" of lexical items.

Now assume that C-lin rebuttals are accepted as sufficient refutation to my objections. The result is a refusal to attempt to account for neurological and psychological data. This is even more disturbing. Consider that SP is supposedly a part of UG. UG is not simply a collection of language universals, to which I would not object in principle. UG is now nothing less than the explanation of how language is acquired by developing native speakers. Learning and acquisition are surely cognitive processes and they just as surely involve the construction and processing of neurological networks. UG thus constitutes a hypothesis chain about the construction and processing of neurological networks in a theory which is not concerned with accounting for neurological data. It is unlikely that such an enterprise will succeed.

In the context of these objections, I would personally find it impossible to maintain the fiction that these conclusions have any scientific validity. However, there is an even more basic flaw in the architecture of the model, and I consider this flaw now.

V. On the Reality of ICons

The most basic question regarding any scientific hypothesis concerns existence. Throughout Ross's research on ICons, throughout Chomsky's movement from A-over-A to early SP (with the Tensed Sentence Constraint) to contemporary SP, this question has never been answered. I do not mean to suggest that the necessity of their existence has never been considered. I mean that what is considered a proof of their existence is no proof at all.

Consider the genesis of ICons. A DS is generated and movement rules operate on it. The movement rules correctly account for some data. However, they also predict sentences which are not merely violations of some grammatical standard, but which are totally incoherent, i.e. not English. On its face, this is clearly unacceptable. There are two ways to rectify the situation. First, the generative-transformational model could be deemed inappropriate to natural language and discarded.¹² Alternatively, a generative-transformational model could be retained with the addition of some mechanism which prevents the production of incoherent sentences or which at least marks these sentences as incoherent. ICons and A-over-A/SP are this kind of blocking mechanism, what I call *ex post facto* negative constraints. Adopting such negative constraints is the chosen course of action for C-lin.

Now the "proof" for the validity of a constraint like SP is simply that it seems to block what it was designed to block. This is not a proof of its necessity (see section VII). Moreover, the tests applied are not particularly stringent. For example, SP is not intended to block echo questions, which are grammatical. So in principle SP constrains the question transformation and is itself constrained to permit (i.e. not to block) echo questions. This represents two levels of negative constraints. Even so, there are loopholes.

Furthermore, the trend is and has been toward more classes of constraints. Movement transformations used to move a particular sentence constituent from one particular position to another. In the classical C-lin era (through *Aspects*) Dative Movement interchanged the positions of the indirect and direct objects. At that time there were many transformations that included movement. The only permitted movement rule now is "move alpha". No source position or goal position in the sentence is specified; no particular element is specified. Not even alpha's syntactic class is specified. Clearly a rule like this has such potential for causing chaos that it must be seriously constrained. The transformational rule itself has been made less specific or simplified, in the C-lin view. But much constraining mechanism has been added to the grammar to "rule out" unwanted predictions. The effect on the overall grammar is not simplification. In fact, the model's architecture becomes increasingly cluttered.

And the clutter is motivated at base by the need to rehabilitate the model in the face of false predictions.

VI. Summary

Ad hoc, *ex post facto* negative constraints in the ICon family are used very broadly in C-lin to rule out incoherent sentences. Initially these constraints emerged from a desire not to produce the offending sentences while maintaining the generative-transformational mechanisms that predict the possibility of those sentences. The model was preserved and to some extent improved in observational adequacy, but it became substantially more complex.

During the same period there was a reduction in the specificity and number of movement rules. This reduction led to a simpler transformational component, which offset some of the increased complexity resulting from the added constraints. However, as the trend toward simplifying and constraining rules continued, additional *ex post facto* mechanisms were added. The need for these mechanisms was essentially the proof of their existence.¹³ The result is a great increase in the overall complexity of the C-lin theoretical architecture.

Complexity apart, the constraints are phrased in syntactic terms so abstract that they

"must be" a part of UG. (See the logical analysis of the UG Postulate in Sullivan [1989].) Everything in UG is so abstract that it cannot be acquired by children from an examination of the data. Therefore, it must be coded in the DNA and is activated automatically when children are exposed to a "trigger event" in their native language.⁴ If this chain of reasoning held, then the architectural complexity added by ICons, SP, and other negative constraints should be forgiven, as it would be well worth the investment.

This is essentially where the matter rests today.

VII. Actual Proof

In order to see what is necessary for an actual proof of SP, it is necessary to look at the logic underlying the "proof" developed above. We can, for the sake of this discussion, ignore the materials about DNA and neurology and concentrate on the abstract principles involved. SP cleans up the problems created by *move-alpha*. That is, SP is necessary, if we have *move-alpha*. Now let *move-alpha* be the proposition p and let *SP is necessary* be the proposition q . The proposition 'SP is necessary, if we have *move-alpha*' translates into q if p or, in more familiar form, $[p \supset q]$. The next step is to prove q , i.e. that SP is necessary. Showing that SP cleans up *move-alpha* does not prove that SP is necessary. It only shows that the implicational relationship between p and q holds. Proving q requires something else.

What we have here is $[p \supset q]$ and q , or the major premiss and the conclusion of the classical deductive syllogism. To complete the syllogism we need the minor premiss, p . That is, we must show that *move-alpha* is an actual rule of English. This has never been done. Therefore, no actual proof of SP has ever been offered.

In fact, attempting to prove *move-alpha* gets us nowhere. *Move-alpha* is an artifact of a theory that generates a linearly-ordered DS and shifts things around to relate it to a corresponding SS with a different linear order. It cannot be proved that DS and SS are necessary, that DS must be linearly ordered, or that DS and SS must be related by transformations.

In short, an actual proof of the necessity of SP is probably impossible. (Compare my discussion of the consequences of the UG postulate in Sullivan [1989].) In the absence of SP, then, we must seek an alternative explanation of the interrogative data.

VIII. Reasonable Alternatives

ICons and their collateral kin arose in regard to descriptive inadequacies in C-lin. They have since extended their domain to UG, with its claims for DNA coding and language acquisition. I believe that a reasonable alternative to ICons can be found, but there are two caveats I must state before I begin.

Caveat 1: Experience suggests that a search for an alternative within C-lin is likely to be either unsuccessful on its face or a solution worse than the problem.

Caveat 2: An alternative to ICons need have no structural resemblance to ICons or SP, it need only be functionally equivalent. That is, it should account for the limits on reference and question formation and for the acquisition of these capabilities by developing native speakers.

I see no hope of finding an adequate C-lin alternative, and I will not try. Seeking a functional alternative suggests another approach. Description and acquisition are radically different activities. There may be a distinct alternative to fit each function. Given the difference between them, this is not unreasonable. Consider first the descriptive function.

ICons prevent movement of an NP from certain syntactic contexts. SP rules out the relationship between a promoted NP and a buried "trace". That is, ICons embody a hypothesis about what questions cannot be formed and SP embodies a hypothesis about what references cannot hold. ICons and SP are different constraints: the former are supposed to prevent certain movements; the latter allows the movements but marks the results as ungrammatical.

However, IConS and SP share one important characteristic. Both are aimed at the negative, at what cannot be done grammatically in syntax. This is backwards.

General structural hypotheses should be aimed at what is obligatory with a general stipulation that anything not permitted does not occur. Positive structural hypotheses are in general much simpler than negative constraints on structure. To see this, consider the kind of rule necessary to state the order of occurrence of Subject, Verb, and Object in a declarative clause for a language like English. Something like (9) suffices for a positive statement, but something like (10) is necessary for a negatively-constrained statement.

- (9) Clause/Subject Verb Object
- (10) For a Clause, pick one of each class (Subject, Verb, Object);
BUT IF Verb precedes Subject OR IF Object precedes Verb OR Subject,
THEN the product is not a clause.

Now the first line of (10) is simpler than (9). However, when the constraints are added, (10) is considerably more complex than (9). Part of the reason for this is that the constrained rule has to block five alternate linearizations.¹⁵ The more complex the situation gets, as with questions and reference, the more difficult the negative formulation becomes, relative to the positive. In general, the negative formulation is probably best avoided.

In the present case, two distinct positive structural hypotheses are needed to fulfill the functions of the descriptive alternative. First, we need a general theory of questions. That is, in a given situation, we need a theory of how much can be unknown to a speaker who can still ask a coherent question other than "What did you say?" Halliday (1967) shows that the information structure of the discourse is reflected in the organization of English sentences (Given vs New information). An information-functional description of questions is thus possible. At the same time, it is useless to seek a purely syntactic description of questions, for no purely syntactic description of questions exists.

Second, we need a general theory of reference to account for which name-descriptive phrase-pronoun-zero refers to which participant in the discourse. Gleason, Halliday, Longacre, and many others have worked on descriptions of participant cohesion over discourse in several non-Chomskyan theories of language. Given a description of discourse cohesion, there is no need for a separate description of syntactic cohesion. What will work over the discourse will also work across a sentence.

I do not, however, offer either a general synthesis of their work or a formalized description of my own; I am not an acceptable critic of a C-lin model. In Sullivan (1978) I show that all kinds of raising, passive, Tough-movement, etc. are different realizations of a single phenomenon. I had been making this claim in talks since I began looking at syntax in 1972. A C-lin parallel would be that all these different "movements" were not different transformations but a single rule. Several C-linguists were present in 1977; at that time, only J. McCawley thought I might have a point. Now, because Chomsky has finally convinced himself that there is only one movement transformation, C-linguists everywhere accept the claim.¹⁶

Finally, consider acquisition. Recall that SP must be induced from a study of the non-occurring "sentences," to which children have no access. Because of its nature SP is unlearnable. But something like SP or IConS is needed in C-lin to eliminate questions like "where did your letter to a friend in get lost?" and "explain" why children do not acquire the ability to say such things.

But there is a more straightforward explanation. The key here is to ask the opposite question: why *should* a child acquire such a structure? No one ever says things like this. If we assume that children acquire language inductively, by observation, memorization, and generalization, then nothing like (2c, d, e) should occur. It is only if we assume that a child is born with a "move alpha" rule that we need the additional hypothesis of an ICon or an SP-type constraint. By not making this unnecessary assumption (move alpha)¹⁷ we obviate the need for IConS, SP, and, most likely, all the rest of UG.

NOTES

¹Chomsky himself contemned, not to say condemned, some of the proposals made in his name, calling them "notational variants" and dismissing them almost out of hand.

²Trusting to the sagacity of the reader, I omit asterisks.

³These include the complex noun phrase, the sentential subject, the coordinate structure (including compound elements), left-branching structures, and upwardly-bound structures for which rightward movement is forbidden.

⁴This is probably part of the reason why Ross's dissertation has not been published.

⁵If my recapitulation of the history of the classical period of C-lin seems too harsh, I direct the reader's attention to van Riemsdijk and Williams (1986:33), who refer to the debate as a "battle" which Chomsky eventually "won".

⁶So C-lin went from two kinds of rules and one kind of node to one kind of rule and two kinds of nodes. I will not attempt to demonstrate that this is advantageous.

⁷Exactly as Ross (1967) noted. He deserves explicit credit for this.

⁸I have never been clear as to what an untensed S is. Presumably it is a non-finite construction, of which English has several types. Chomsky treats it as "the" infinitive phrase (not easy, as English has at least four infinitives). Yet what, in the end, is an infinitive but a verb without a subject (NB: not without an Agent but without a subject)? And so on. The discussion soon devolves into a useless regress.

⁹This is a great oversimplification, but it suffices for my purposes without introducing false impressions.

¹⁰"Well, DS really isn't Deep Structure any more, just as SS isn't really Surface Structure." More than this I will not say; nor will I identify the speaker.

¹¹I have finessed a number of questionable points in this description. Some of them are supposed to have solutions; some do not, so far as I can see. They are all beyond the scope of this study, and some of them are apparently beyond the competence of current researchers.

¹²Or radically modified: Gleason has proposed a possible stratificational model which could accept and use a limited number of "adjustment" transformations. But Gleason's model is neither limited to syntax nor generative in nature. More important, in the context of this study, it does not use negative constraints.

¹³Since C-linguists have given up trying to define a simplicity metric, they no longer argue questions of relative simplicity. They say that redundancy is "uninteresting" and drop the issue. Presumably, they have nothing more to say about it. As recently as the mid 70's C-linguists were still saying that a major advantage of "the" theory was that in a single term you could teach students enough about it to enable them to do a significant amount of useful analysis of any language. (That almost all of the students did English was passed off as a coincidence.) This claim is no longer heard. More open (or possibly less cautious) C-linguists admit that the theory is no longer as easy to learn as it once was.

¹⁴C-linguists are now pursuing the trigger event the way they once pursued the universal underlying word order. I predict identical success.

¹⁵It might be possible to rehabilitate (10) by claiming that the first line is universal and the next two are language-specific. If anyone has made such a proposal, I am unaware of it, though some of the proposals about X-bar syntax are relatively close to it. Even so, (10) would not automatically become simpler than (9).

¹⁶In ignorance of my description, of course. My description is still better: it puts the alternatives into discourse context and needs neither ICons nor SP's.

¹⁷See Reich (1988) for extensive discussion involving C-lin assumptions about acquisition.

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INHERENT RELATIONALITY AND THE INTERPRETATION OF DEFINITE EXPRESSIONS

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Introduction

Past research has assumed a major role for "real-world" (nonlinguistic) knowledge (RWK) in the interpretation of numerous types of definite expressions. First, I would like to examine two examples cited in earlier work which were intended as clear illustrations of the need for real-world knowledge. Then, I will propose an alternative view in which such cases can be handled within the scope of linguistic semantics. While it is my intention to focus on the purported necessity of invoking real-world knowledge in a *computational* model of natural language decoding, I believe that the proposed approach also offers an attractive alternative as a model of human language processing, for reasons set out below.

Two Examples

The first example is taken from Grosz & Sidner (1986:186). See Text Segment (TS) 1. The numbering of utterances (18) - (25) is that of Grosz & Sidner, who have excerpted a TS containing 25 utterances from a task-oriented dialogue between an expert (*E*) and an apprentice (*A*). Grosz & Sidner are interested in developing a computer program which can interpret the definite expressions in discourses of a variety of types, of which a task-oriented dialogue is one.

Of particular interest to them in this case is how *the screw in the center* in (25) can be appropriately interpreted as referring to the screw in the center of the wheelpuller (which has not been previously mentioned in the entire discourse -- although the wheelpuller has), rather than one of the two screws mentioned in (18). While they claim that the discourse structure is not isomorphic with the task structure, the correspondence between the two clearly indicates that knowledge of the former is derived from knowledge of the latter. Their assertion is that Discourse Segment 5 (DS5) focuses on the wheelpuller, that the listener (*A*) knows this because of RWK about the task, and that *A* thus can interpret *the screw in the center* as referring to the screw in the center of the wheelpuller.

The second example is taken from Winograd & Flores (1986:113). They state that in order for readers to understand the significance of the

definite expression *the box* -- that it contains the new set of blocks Tommy receives -- they must invoke RWK of gift-giving events, e.g., that blocks might be a suitable gift for someone named *Tommy*, that gifts typically come in boxes, and so on.

TS 1: Task-oriented dialogue segment
(Grosz & Sidner, 1986:186).

DS1	(1) E:	First you have to remove the flywheel.
	(2) A:	How do I remove the flywheel?
	.	
	.	
	.	
DS4	(18)	The two screws are loose, but I'm having trouble getting the wheel off.
DS5	(19) E:	Use the wheelpuller. Do you know how to use it?
	(20) A:	No.
	(21) E:	Do you know what it looks like?
	(22) A:	Yes.
	(23) E:	Show it to me, please.
	(24) A:	OK.
	(25) E:	Good. Loosen the screw in the center and place the jaws around the hub of the wheel, then tighten the screw onto the center of the shaft. The wheel should slide off.

TS 2. Tommy had just been given a new set of blocks. He was opening the box when he saw Jimmy coming in. (example created by Winograd, in Winograd & Flores, 1986:113)

Problems in the Application of RWK to Discourse Understanding

One problem area in the application of RWK to the interpretation of definite expressions that arises specifically in conjunction with dialogues like that presented by Grosz & Sidner is what I refer to as the "Apprentice's Dilemma". Recall that the discourse structure of the

dialogue from which TS 1 is extracted is derived from the structure of the task in which that dialogue is embedded. By definition, the apprentice (*A*) is someone who does not have RWK of the task structure. Still, according to Grosz & Sidner, *A* must have knowledge of the task structure in order to understand the definite references in *E*'s speech. This leads to a paradox: *A* must already have RWK of the task structure in order to be able to learn what the task structure is. In order to avoid this paradox, we must explain how *A* can understand the definite references without recourse to RWK.¹

Another problem involves how *appropriate* RWK will be accessed. Clearly, no real-time system of significant scope can perform a search of all RWK it possesses in order to identify which elements of that RWK are relevant to a particular interpretation. However, as both Peter Reich and Sydney Lamb have pointed out (in commenting on the oral version of this paper), this is really only a major difficulty in systems that utilize linear processing (such as most contemporary computers) rather than nonlinear processing (such as the brain). Still, since my primary concern in this case is with linear computational systems, I will regard this as a serious problem.

Third, the structures proposed by Grosz explicitly involve nesting to indefinite levels of complexity (note DS5 inside DS4 inside DS1 in the example in TS 1). Nested structures involve the embedding of similar units of grammar one inside the other. A concrete analogue to this sort of grammatical structure is a set of nested end tables (or, if you prefer, a set of Russian dolls). The sentence *The rat that the cat killed ate the malt* can be compared to a pair of end tables, one nested inside the other. There is strong evidence that human languages do not permit nesting to an indefinite depth. Consider the rather dubious non-sentence **The rat that the cat that the dog chased killed ate the malt*, which contains nesting of the same kind, but to one additional level. Then contrast this with a sentence in which elements are not nested, but arranged sequentially: *The rat that was killed by the cat that was chased by the dog ate the malt*. This sequential arrangement is analogous to the same end tables, but this time laid out in a row. Such sentences as the latter can go on to indefinite length -- which is quite a different matter from having nesting to an indefinite depth. See Reich (1969) and Christie (1976) for discussions of some of the issues surrounding limits on nesting in English.

Fourth, nonsense-word examples such as the (b) versions of TS 3 - TS 5 can easily be constructed. How can the (human) reader conclude (not knowing anything about *gamlikan*) that the situation here involves gift-giving? Surely the presence of the lexical item *give* is an insufficient clue, since we can cite examples like *She gave him a {kiss, hard time, day to decide}* etc. In any case, whether the situation involves gift-giving or not, the reader will still assume that the box

contains *gamlikan*. But how? The reader of TS 4 (b) similarly will conclude that *zamtors* are the agent, patient, or instrument of *the destruction*. Again, lacking RWK of *zamtors*, how does the reader know they are involved in the destruction in one of these ways? A third example is contained in TS 5 (b). The reader will assume that the *Mimsit* (or rather what is left of it) is in the bottle.

Now in the case of TS 3 (b) - TS 5 (b), it is possible to imagine the TS embedded in a particular situation -- or a longer text -- in which these assumptions described above would be nullified. Let's take TS 5 (b) as an example. In the former instance (where the assumption is nullified because the TS is embedded in a particular situation), I cannot see how this could make any difference unless the new situation includes the reader's having different RWK about *Mimsit* (e.g., the TS appears in the context of a narrative set in a dinner theater where the actors on stage are performing in a foreign style called *Mimsit*). In the latter instance (where the assumption is nullified because the TS is embedded in a longer text), then that longer text will need to (i) provide another -- and more likely -- referent that could be contained in the bottle, (ii) provide new RWK that precludes the interpretation with *Mimsit* in the bottle, or (iii) provide both.

- TS 3. a. Tommy had just been given a new set of blocks. He was opening the box when he saw Jimmy coming in. (TS 2, repeated from above)
- b. Tommy had just been given some *gamlikan*. He was opening the box when he saw Jimmy coming in.

- TS 4. a. Bombs descended all over Warsaw. The destruction was terrible.
- b. *Zamtors* descended all over Warsaw. The destruction was terrible.

- TS 5. a. "There's nothing as pleasant," he said, "as twenty-year old Scotch. But unfortunately, the bottle's almost empty."
- b. "There's nothing as pleasant," he said, "as twenty-year old *Mimsit*. But unfortunately, the bottle's almost empty."

The same arguments that apply to the human reader's understanding of TS's with nonsense words can be applied in the case of computational processing of texts with vocabulary unknown to the system. Surely, we should prefer a system that can deal with a broader

range of utterance types (those containing novel vocabulary) to one that cannot.

Finally, we should tread with great care whenever tempted to say, "the information listeners are using in this case is not part of language (whether syntax or semantics) -- it's part of their real-world knowledge". By this I do not mean to deny that humans use RWK in language understanding or to propose that computational models should avoid using it altogether. However, with regard to models of human understanding of language, I would like to make two points. First, statements like the one above presuppose a clear delineation between "linguistic" knowledge on the one hand and "real-world" knowledge on the other, as if the two were not intertwined, as they indeed are. Second, we must take great care in using "real-world knowledge" as a sort of categorical "wastebasket" for everything not traditionally dealt with in linguistic semantics. Having a "wastebasket" category is a necessity of partial analyses, but we should prefer that its contents be both heterogeneous and few. With regard to computational processing, minimizing recourse to RWK is clearly preferable for the sake of efficiency, since doing so will help generalize the system.

Two Guiding Principles

I would like to propose two guiding principles governing the construction of any computational model which applies RWK to discourse understanding. The intent is to reduce or eliminate the problems described above.

First, the system should take recourse to RWK (as distinct from the linguistic knowledge contained in its parser) as infrequently as possible. This will eliminate the need for *ad hoc* nested DS's such as Grosz & Sidner's and suggests a way out of the Apprentice's Dilemma.

Second, the system should access RWK negatively. It may not be possible to restrict all use of RWK by a computational model in this way. However, if it is (i.e., if the system can check RWK only to attempt to nullify a specific interpretation), then the system will always have a clear indication of what RWK to access. In addition, while insisting on positive access of RWK will prevent construction of a system that can deal with novel vocabulary (such as the nonsense-word example above), assuming negative access leaves us a way out.

In the following two sections, I will show how elliptical locatives can be treated as containing a type of zero anaphora. The phrase *the screw in the center*, in Grosz & Sidner's example, contains such an elliptical locative (*in the center*). Next, I will explain how this treatment can be extended to cases like *the box* in Winograd & Flores' example.

Elliptical Locatives

In Coleman (1986), I presented a formal model of elliptical locatives which treated them as containing a type of zero anaphora. Consider a hypothetical TS from a "blocks world" dialogue in the style of Winograd's (1976) SHRDLU (actually, as produced by a program called TERRI; Coleman, 1985) -- TS 6.

- TS 6. (1) Put the white cube to the left of the spool.
 (2) *OK.* <The white cube rises, moves horizontally, and lands immediately to the left of the spool.>
 (3) Put the black one to the right.
 (4) *OK.* <The black cube rises, moves horizontally, and lands immediately to the right of the spool.>

(Plain text indicates human input to the computer keyboard; italicization, the computer's response; reduced boldface in < > brackets, action visible on the computer display.) This model treated the phrase *to the right* in (3) of TS 6 as containing a zero anaphor ($\emptyset$) as complement of *right*. The antecedent for this $\emptyset$ is *the spool*. The situation is expressed schematically in Figure 1.

Figure 1: Zero anaphor in *to the right*.

... to the left of the spool

... to the right of $\emptyset$

Clearly, the same approach applies very well to Grosz & Sidner's *in the center*, since we can treat it as containing a zero anaphor which makes it something like *in the center of $\emptyset$* . The antecedent of $\emptyset$ is the same as that for *it* in TS 1 (19), (21), and (23): *the wheelpuller* in (19). Hence, for the supposedly highly problematical case of Grosz & Sidner's *the screw in the center*, we need no extralinguistic mechanisms, no recourse to RWK. I will suggest use of the term *inherent relationality* to refer to this property of locatives like *right*, *left*, *center*, and so on; a center, for example, must be the center of *something*. In other words, each of these terms inherently expresses a relation to something else. Further, this property, although it might be considered a form of

knowledge about the world, is most conveniently regarded as an element of the linguistic semantics of such locatives.

Extending the Notion of Inherent Relationality

Inherent relationality can be identified as a property of a wide range of nominal types. Although detailed confirmation is not possible given the scope of this paper, I would like to propose that all nominals possess the potential for having zero anaphors corresponding to the elements in their complement structure which are involved in noun subcategorization at the semotactic level. For example, *box* subcategorizes semotactically with items like *bottle*, *cup*, *bowl*, and others in that it has a complement structure of the form $X : X$ (*S/CONTAINING/ Y*), i.e., where *Y* is something that it (*X*) contains. (The sememe *S/CONTAINING/* is normally realized by the lexeme *L/of/.*)

TS 2, the example from Winograd & Flores (1986) can, given this treatment, be handled without recourse to RWK. The phrase *the box* can be treated as including a zero anaphor: *the box of Ø*. The available antecedents for *Ø* are *a new set of blocks* or, possibly, *blocks*. The question of which seems moot. In any case, there is no real need to take recourse to RWK in order to conclude that the blocks are in the box in TS 2. The use of the definite article in *the box* tells the reader that the box has been uniquely specified. Knowledge of the semotactic complement structure of *box* can be used to note the presence of a zero anaphor (*Ø*), which then allows identification of the antecedent of this *Ø* in the same way as with other instances of *Ø*. Only if no appropriate antecedent can be found must a unique exophoric referent for *the box* be sought. Since this approach uses RWK negatively, it will allow more efficiency in a linear processing model (one using a computer). In addition, it is more generalized, so it can, as part of a model of a human or machine natural language understanding system, help explain how a language processor can deal with texts containing novel vocabulary (about which no RWK is available).

TS 7. Have you ever bought a computer that you just *knew* was a lemon? Chances are, if you haven't had the frustration yourself, you know someone who has. (Furger, 1991:49)

TS 8. It's been worth the wait -- nearly four years for most users. DOS 4.0, released in 1988, was so hobbled by bugs, stiff memory requirements, and a difficult installation procedure that hardly anyone made the switch. (Spanbauer, 1991:83)

- TS 9. The wheels of our chartered Aeroflot TU 154 bounced onto the runway. I looked out the window for my first glimpse of Petropavlovsk-Kamchatskiy, the supersecret city and submarine port on Siberia's Kamchatka Peninsula, but saw only swirling snow and darkness. (From Unalaska, 1991:31)
- TS 10. When someone becomes infected with the AIDS virus, the immune system attempts to fight it off by producing antibodies. Usually the attempt is ineffective. (Positive response, 1991:26)
- TS 11. Consider this scenario:
 John, the father of three adolescent children, notices that his wife, Peggy, has grown increasingly depressed over the past few months. They talk about it, but neither can identify anything specific that might be causing the change. (Vazquez, 1991:12)

TS 7 - TS 11 contain further examples of definite expressions which are hypothesized to make use of inherent relationality. TS 7 - TS 10 are the first two sentences of each article from which they are drawn (sources for these include *PC World* magazine, *Smithsonian*, and *Scientific American*). TS 11 is excerpted from a few paragraphs into an article (the source in this case is *Toledo Magazine* -- a Sunday supplement to the *Toledo Blade*); however, it is clearly marked as a distinct discourse unit by the introductory phrase *Consider this scenario*. In each of these text segments, there is no prior linguistic context (other than that shown here) which can provide an antecedent for any definite expressions they contain.

In TS 7, suppose the reader interprets *the frustration* as containing a zero anaphor in its semotactic complement structure, i.e., as something like *the frustration of Ø*, where the semotactics require that Ø take the form of a complete predication with identity between one of its arguments and an argument from the matrix. (This corresponds to a lexemic realization of the form *the frustration of VPing*.) The only available antecedent for Ø is the previous predication, which contains an argument having identity with one found in the matrix of the predication containing *the frustration* (i.e., *you*). As with *box*, the assumption of a potential zero anaphor in the complement structure of *frustration* therefore precludes any need for recourse to RWK.

TS 8 contains *the switch*, which can have as its complement source (So), goal (Go), or range (Ra). Note that the theme of the

sentence containing *the switch* is *DOS 4.0*, the hypothesized antecedent for $\emptyset$ in this instance. Note that while other factors must be involved in selecting among *So*, *Go*, or *Ra*, hypothesizing the zero anaphor automatically provides the basis for an interpretation analogous to *the switch {from, to, in} DOS 4.0* -- again, without recourse to RWK.

TS 9 - TS 11 can be dealt with in similar fashion. In TS 9, *the window* is interpreted analogously to *the window of $\emptyset$* , where $\emptyset$ possesses a whole-to-part relation with *the window*. TS 10 contains *the attempt*. *Attempt* has a complement structure similar to that of *frustration*, but requires that its agent (Ag) have identity with some previously mentioned discourse participant. This provides for an interpretation of *the attempt* as analogous to *the attempt to $\emptyset$* , where the most available antecedent is in the matrix of the previous predication, realized as *to fight it off by producing antibodies*. It could be argued that the presence of *attempts* in the previous sentence makes hypothesizing $\emptyset$ superfluous in this case. In other words, we could treat *the attempt* as an example of repetition of the sememe *S/attempt/* previously realized as a verb. But consider a variant of TS 10 with *tries* instead, or for that matter, one that reads *...the immune system fights it by producing antibodies*. In either case, hypothesizing $\emptyset$ would still allow the appropriate interpretation, while depending on repetition would not. In TS 11, *the change* can be dealt with in the same way as *the switch* in TS 8.

TS 12. First the fellow gave his wife a massage, and then she returned the favor.

TS 13. First Black Bart took a shot at Calamity Jane, and then she returned the favor.

Finally, I would like to offer an example from Prideaux (1991), a paper presented at this conference (TS 12). While we could argue that the antecedent for *the favor* is identifiable here based on RWK because we know that receiving a massage is pleasant and therefore giving one is doing the recipient a favor, suppose we have a case like TS 13. Unless we make a vague appeal to metaphor, we cannot hope to explain how to locate the antecedent for *the favor* in the latter.

The Formal Description

Given the limitations of space, I will present only a brief sketch of a stratificational description of inherent relationality. It treats the definiteness of phrases like *the center* in (25) of TS 1, *the box* in TS 2,

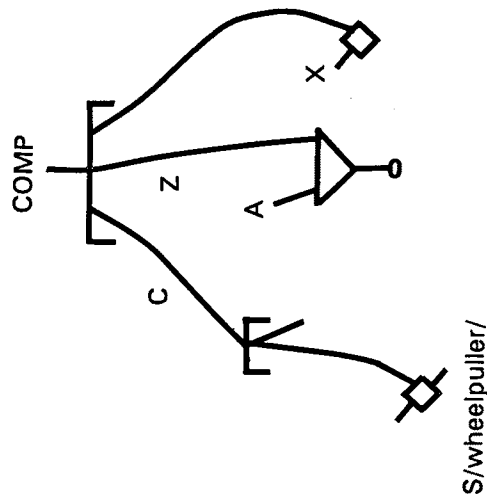


Figure 3. Detail of COMP.

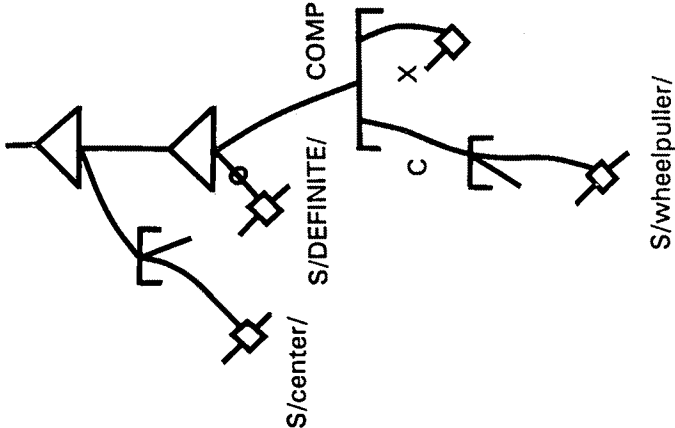


Figure 2. Semotactic environment of S/center/.

and so on as cases of cataphora, where the following zero anaphor provides unique specification (as does *New York* in *the city of New York*). Figure 2 shows the semotactic environment of S/center/ as in TS 1 (25). This diagram does not include a description of inherent relationality, but shows the mechanisms needed to handle definiteness arising either from cataphora (with unique specification via an explicit complement to S/center/, e.g., S/wheelpuller/ under line C) or from exophora (when the extralinguistic set allows unique specification via RWK -- line X). The DOWNWARD ORDERED OR node under the line labelled **COMP** shows that cataphora resulting form an explicit complement (C) takes precedence over exophora (X). The formalization of inherent relationality requires only very minor addition to the section of the relational network illustrated here. Figure 3 shows a detail under line C of the necessary expansion to the DOWNWARD ORDERED OR under **COMP**. Here, the line Z is the zero anaphor ($\emptyset$) -- note that it "dead ends" in a null terminus (the small circle at the end of the line below the UPWARD ORDERED AND). The UPWARD ORDERED AND requires a preceding input (line A) -- the antecedent for the $\emptyset$.

Conclusion

I hope to provide additional confirmation for the viability of the notion of inherent relationality. One way will be to generalize the formalization to account for a wide range of instances of definite expressions as exemplars of cataphora rather than exophora. This would increase its potential usefulness in a computational model. In addition, I plan to construct an experiment to test individuals' reactions to nonsense-word text segments like the (b) versions of TS 3 - TS 5. In this way I hope confirm empirically that listeners will, in fact, interpret a text segment like TS 3 (b) as indicating that there is (or was) *gamlikan* in *the box*.

Note

¹I will admit that another line of reasoning is possible. Since A must have the linguistically-relevant RWK of the task and since this RWK cannot be learned via discourse, we could also conclude that the requisite RWK was in A's brain, neurologically hardwired in unenabled ganglia (UG) which are then activated by exposure to the discourse.

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THE FREUDIAN *ES* OR *ID*
AND THE SYNTAX OF IMPERSONAL VERBS

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Psycho-analysis, in the course of the twentieth century, has been so popularized that quite a bit of its vocabulary has passed into general usage, by persons like me who have heard and read about this fascinating subject but not studied it thoroughly nor undergone the famous treatment. I cannot claim an expert understanding of the terms as used in the psychiatric profession, but I approach some of those terms with a linguist's curiosity, particularly in regard to the clash between languages.

Sigmund Freud, along with his colleagues, disciples, and rivals, developed their art or science in Vienna, where their language of course was German; but their influence has spread far and wide. Rather little of their German vocabulary has become current in English-speaking countries. *Angst* is perhaps the most familiar loan-word, though often translated 'anxiety' (rather than 'anguish', which would be closer to *Angst*, at least etymologically). The quadrisyllabic *anxiety* is a feeble reflection of that dreadfully potent German word *Angst*; so it is no wonder that here the usual recourse to translation has not fully prevailed.

Freud's Anglophone disciples set out to translate his German terms methodically, and have been more thorough in carrying out that intention than is typical of bilingual situations where the speakers of one language have a lot to learn. Unless some other motive interferes, they naturally seize upon the key-words from the master's language and bring them freely into their own speech. The result may be a jargon, baffling to monoglots. The Freudians who introduced the American and British public to psycho-analysis avoided that pitfall, but their linguistic procedure has had some untoward consequences even so.

They have been most severely criticized by the late Bruno Bettelheim.¹ He came from Vienna too, but settled in the United States

¹ *Freud and Man's Soul* (New York: Alfred A. Knopf, 1983), 49 ff. My colleague, Marilyn Gaddis Rose, professor of comparative literature and director of the

before the middle of his long life, had a distinguished career, and wrote excellent English.² He found it hard to cope with the subtle but extensive misunderstanding that affected his American colleagues in their reading of Freud's works. To teach them enough German so as to be independent of the English version, would scarcely have been practical. Bettelheim remained frustrated by the gap between his grasp of Freud in the original and their unwitting distortion.

In one respect, however, I am in a position to mediate between Bettelheim and the translators that he attacked. That is where they chose Latin rather than English equivalents for certain German terms. It is most striking in the very title of Freud's brilliant essay *Das Ich und das Es*.³ Joan Riviere rendered it not 'The I and the It' but *The Ego and the Id*;⁴ and so it has remained, in spite of Bettelheim's protests. He had reason to object that through the translator's ineptitude "an introspective psychology is made into a behavioral one,"⁵ and that both 'ego' and 'id' misrepresent the German pronouns used as nouns by Freud.

Bettelheim was aware that *ego* had entered the English vocabulary much earlier; but, as he noted, it is always used pejoratively in such compounds as *egoistic* and *egotism* and the slang expression *ego trip*. In the second edition of the *Oxford English Dictionary* (1989) the many citations of *ego*, beginning with the poet Cowper in 1789, bear out Bettelheim's contention only in part: Some writers before the time of Freud did associate *ego* disapprovingly with self-centered persons, but other writers made the word stand for what they perceived to be, objectively, a facet of human nature.⁶ This philosophical

Center for Research in Translation at SUNY-Binghamton, called this important book to my attention.

²He ran the Sonia Shankman Orthogenic School (for autistic and other intractable children) at the University of Chicago; but in the few years since he died, his high reputation has suffered from the belated complaints of many former pupils – or inmates – that he used to beat them and speak cruelly.

³First published by Internationaler Psychoanalytischer Verlag (Leipzig, Wien, Zurich), 1923.

⁴International Psychoanalytical Library No. 12; London: Hogarth Press and Institute of Psycho-Analysis, 1927.

⁵*Freud and Man's Soul*, p. 54.

⁶E.g., *Edinburgh Review* (1829): "In every act of consciousness we distinguish a self or ego"; Gladstone, writing about Homer (1870): "The harmonious laws of his mind are everywhere visibly at work – but the ego – the mere personality – is nowhere to be traced."

The new *OED* has unfortunately missed the term *ego* as used by anthropologists, although this is recorded by several dictionaries on a less massive scale; e.g., *Webster's Third New International Dictionary of the English Lan-*

use of *ego* goes back, in fact, to the great German thinker Kant.⁷

I would also point out – in extenuation, if not in justification, of the translator – that *ego* functions in English as a noun, not a pronoun, although obviously taken from the Latin pronoun, and that therefore Freud's nominalization of the German pronoun – *das Ich* – invited the smooth English rendering 'the ego'.⁸ The translator's recourse to a word borrowed from Latin was not uncalled-for, especially since 'the I' – which would have most literal – had the further disadvantage, at any rate in oral discourse, of an unwelcome and confusing homophony with *the eye*.

Bettelheim has a stronger case, however, for arguing that 'the me' would have deserved preference as the best English equivalent to *das Ich*. Given the differences between German and English syntax, our pronoun *I* is mainly limited to a close conjuncture with the verb, much like *je* in French. Extending the use of *I* at all beyond that is contrary to the modern English *Sprachgefühl*. Even the slight extension to a compound subject, such as *you and I*, goes against the grain. Teachers have relentlessly inculcated *you and I* instead of the colloquial but inelegant *me and you*; but they have only succeeded in implanting an unintended and spurious rule: *and I* to the exclusion of *and me*. It practically takes a Latinist or a Germanist among us to internalize the erstwhile rule of English pronominal cases, requiring *They trust you and me*.

But a certain difference between German and Latin is what makes the English Latinism *the ego* a poor translation of *das Ich*, and *the id* an even worse translation of *das Es*. The German pronoun *ich* is in an intermediate state between the English *I* and the Latin *ego*. *Ich* is (with minor exceptions) required when the verb is first person singular – also when it is first person plural and the subject is compound. But *ego* in Latin accompanies a first person singular verb only for the sake of emphasis or contrast: *audio* (with the personal ending

guage, Unabridged (Springfield, MA: Merriam, 1961): "ethno[logy]: an individual person taken as a point of reference in a particular framework (as a kinship system)."

⁷Being little acquainted with eighteenth century philosophy, I owe this piece of information to *Le grand Robert de la langue française*. I have not found it confirmed in any German dictionary.

⁸The pronunciation ['ɪɡoʊ], which is now usual in the United States but no longer in Britain, comes from the English traditional treatment of Latin disyllabic words, disregarding the true Latin quantity of the vowels (in *ego* both vowels are short). Many Latin words in English continue to be so pronounced although Latin classes now teach, more or less systematically, a return to the ancient sounds.

-o)⁹ 'I hear' or 'ich höre', but *ego audio* 'I hear' or '**ich** höre'. So *ego* expresses self-assertion on the part of the subject, over and above what would suffice grammatically for simple predication. *Ego* occurs frequently enough in any conversational specimen of Latin, just like its descendant *io* in Italian and *yo* in Spanish.¹⁰ The pronoun calls extra attention to the speaker, as *I* and *ich* do not unless reinforced by heavy stress.

To sum up this major point, the Latin pronoun *ego* puts **emphasis** upon the first person singular, and that is what English as well as German writers, from the eighteenth century on, sensed as they brought this word in to supplement their vocabulary. As a linguist I cannot dispute the complaint of Bettelheim as a psychiatrist, that the translation 'the ego' falsifies what Freud meant in German by *das Ich*; for *ich* is utterly basic and central in all German speech, while *ego* is peripheral in English. Moreover, *ich* is not inherently and essentially emphatic or self-assertive.

Freud used *ich* in contradistinction to *es*, to bring out the difference between the conscious and the unconscious part of *die Seele* (which the translators render either by 'the mind' or by 'the psyche' – from the Greek *ψυχή* – but not by the native, cognate English word 'the soul'). He explained in another essay, a few years after *Das Ich und das Es*, his choice of these two pronouns as technical terms:

Sie werden es wahrscheinlich beanstanden, daß wir zur Bezeichnung unserer beiden seelischen Instanzen oder Provinzen einfache Fürwörter gewählt haben, anstatt volltönende griechische Namen für sie einzuführen. Allein wir lieben es in der Psychoanalyse, im Kontakt mit der populären Denkweise zu bleiben und ziehen es vor, deren Begriffe wissenschaftlich brauchbar zu machen, anstatt sie zu verwerfen. Es ist kein Verdienst daran, wir müssen so vorgehen, weil unsere Lehren von unseren Patienten verstanden werden sollen, die oft sehr intelligent sind, aber nicht immer gelehrt. Das unpersonliche Es schließt sich unmittelbar an gewisse Ausdrucksweisen des normalen Menschen an. "Es hat mich durchzuckt," sagt man; "es war etwas in mir, was in diesem Augenblick stärker war als ich." "*C'était plus fort que moi.*"¹¹

⁹The vowel that this ending consists of was regularly long in Latin of the "Golden Age" (the first century B.C.), but thereafter either long or short.

¹⁰But *je* in French, from the same *ego*, is now obligatory with a first person singular verb. To give emphasis *moi* is added before *je* or later in the sentence.

¹¹*Die Frage der Laienanalyse*, in *Gesammelte Werke, chronologisch geordnet*, XIV (London: Imago, 1948, repr. 1955), 222; first published by Internationaler Psychoanalytischer Verlag in 1926. Translated by Nancy Procter-Gregg, *The Question of Lay Analysis* (London: Imago, 1947), p. 15: "You may feel dubious over our choice of simple pronouns to designate our two psychical agencies or provinces, instead of high-sounding Greek names. But in psycho-analysis we like to remain in touch with popular ways of thinking, and we prefer to make

The English equivalent to *Es hat mich durchzuckt* is 'It flashed through me' or 'It stirred me'.¹² Freud put his finger upon something in the German language that manifested – overtly, if not conspicuously – a far-reaching dichotomy in every human being. His understanding of that dichotomy came mainly from listening to his patients at great length and then reflecting upon those psycho-analytic sessions. But he got the simple though brilliant idea of tagging one of the parts of the psyche as *das Ich* and the other as *das Es*. Two kinds of verb constructions – one with the subject pronoun *ich* (or any other subject) and one with only the impersonal *es* – express different sorts of activity or experience within the psyche.

If an equally original thinker had grown up in an English environment, there is no telling what pair of terms he (or she) might have hit upon independently. Impersonal verbs with *it* are common enough, though somewhat scarcer than the German counterparts; e.g., we say *I'm hungry* rather than *Es hungert mich*,¹³ and *I'm sorry* rather than *Es tut mir leid* or *Es ist mir leid*. For *das Ich* the English translators of Freud, as we have seen, fastened upon 'the ego', which was already part of the literary vocabulary. For *das Es* nothing comparable was on hand. A footnote, apparently by James Strachey, states, "There was to begin with a good deal of discussion over the choice of an English equivalent. 'The id' was eventually decided upon in preference to 'the it', so as to be parallel with the long-established 'ego'."¹⁴

We read with interest that they did consider 'the it'; however, the prior choice of 'the ego' for *das Ich* virtually committed them to settling upon 'the id' for *das Es*.¹⁵ Nothing in Latin itself would have

use of everyday concepts rather than throw them away. That is no merit to us – we must proceed in this way, since our teaching must be understood by our patients, who are often highly intelligent but not always highly educated. The impersonal *it* comes quite naturally into the speech of normal people. 'It upset me' one says; 'it was too much for me.'"

¹²See Keith Spalding, *An Historical Dictionary of German Figurative Usage* (Oxford: Blackwell (1961)), p. 536.

¹³Also *Mich hungert* (without *es*), though less frequent.

¹⁴*The Standard Edition of the Complete Psychological Works of Sigmund Freud*, XIX (London: Hogarth Press, 1961), p. 7. Freud himself acknowledged that he had picked up "das Es" from Georgi Groddeck, who in turn was indebted to Nietzsche for it; see *Gesammelte Werke*, XIII (1940, repr. 1955), p. 261.

¹⁵The pronoun *it* (not accompanied by the article) has often been used euphemistically for centuries to allude to sexual intercourse; and more recently the emphatic *it* has stood for 'sex appeal'. If the translators had adopted 'the it', their readers' prior experience with this common English word might well have predisposed them to understand 'the it' as mainly concerned with sexual

predisposed an English scholar or reader to bring such an unobtrusive pronoun into our language. While *ego* stands out in a Latin passage, *id* does not. The Latin phrase *id est*, in the abbreviation *i.e.*, was indeed taken over as a formula in English texts, and sometimes even orally by pedantic speakers who prefer it to saying *that is*; but *i.e.* has nothing to do with the adoption of 'the id' as a psycho-analytic term.

Now Latin abounds in impersonal verbs, but these are not construed with *id*. Adding this pronoun for the sake of emphasis is out of the question. For that matter, *it* in English with an impersonal verb is hardly ever amenable to extra stress, nor is *es* in German – unlike the subject pronouns of the first person *I* and *we*, *ich* and *wir*, as well as the other persons. We often say *It bothers me*, which would be in Latin *piget* with the accusative pronoun *mē* optional.¹⁶ It is easy to imagine a situation that would evoke *It bothers me*, but on the other hand *It bothers me* sounds very unlikely. In case of emphasis upon something inherently vague, it is more natural to say *That bothers me*.

In Latin there is often a fine distinction between an impersonal and a personal verb. Ovid's heroine Hypermetra, in her letter to her absent beloved, says *scribere plūra libet* (*Heroides* 14.131), where the meter – for its part – could just as well accommodate the personal verb *scribere plūra uolō* 'I want to write more'. *Libet* suggests something more heart-felt or visceral: 'I feel like writing more'. All impersonal verbs have the third person singular ending *-t*. If the speaker is to be indicated, *libet* will be supplemented by the dative form *mihi* (not *mē*); but in the great majority of occurrences that person – or some other person – is clear enough from the context, and at any rate is unexpressed. For the focus is ordinarily upon the feeling, rather than the person. At that level, although we realize – if we stop to think – that the feelings being talked about are the speaker's own most of the time, the ordinary Latin expression disregards

urges. That would not have been contrary to Freud's own thinking, and indeed most people who talk about *the id* mean something sexual, with little attention to a multitude of other functions – eating, excreting, rambling, dozing, scratching, etc.

¹⁶The semantic coverage of *piget* does not exactly match that of *it bothers*. Any such particular discrepancy between lexemes in two languages can be taken in stride; but it is worth remarking that the discrepancies become very noticeable when we deal with one Latin impersonal verb after another, and we are driven to the conclusion that such verbs, because they express feelings, have less objective semantic boundaries than is characteristic of most of the vocabulary. So the incongruity from one language to the next reflects the essentially unintellectual quality of what Freud has labeled *das Es*.

this. If some other person was already being talked about, then *libet* or *piget* or nearly any impersonal verb would be assumed to refer to that person, without any expressed pronoun.

Intellectually one might insist that the feeling expressed in the verb presupposes a person and would not be there in the first place, without someone that feels. But the syntax of the Latin language argues rather that the impersonal verbs, at bottom, simply mean what each of them means, regardless of this or that individual. Compare a different set of impersonal verbs, exemplified by *pluit* 'it's raining', *tonat* 'it's thundering', which could very rarely have an expressed subject, the god *Iuppiter*. From our English point of view, requiring a pronoun with each verb, we might conceivably prefer to interpret *pluit* as 'he's raining'. But our choice between 'he' and 'it' is irrelevant to Latin. What matters there, is that each impersonal verb, from its particular meaning, has some inherent limitation as to its **setting**: *pluit* must indeed be out of doors, *piget* or *libet* within somebody; but when these verbs are used, it is unnecessary to specify anything personal with them.

If we were to base our psycho-analytic terms upon real Latin, as Freud based them in fact upon real German, we would have to do without *id*. For there is no *id* to be found in the Latin expressions that bear upon this psychological category; there are only the impersonal verbs, with their ending *-t*. But ever since Latin has been kept alive in schools, chancelleries, abbeys, and universities, the bilinguals who know it more or less well have been exploiting it for various needs, and have even ransacked it like an old treasure, searching for something that could be made to serve a new purpose. So I do not object, as a professor of the Latin language, to this modern adaptation of *id* by the English Freudians.

Besides *das Ich* and *das Es*, Freud went on to define a third term, *das Über-Ich*. This was aptly translated 'the super-ego', which involves two borrowings from Latin – not at all a normal Latin combination, but Latinate morphology as established within English and now quite productive in our language. Freud's coinage of *das Über-Ich* was not suggested by anything in the ordinary use of the German pronouns, as the other two terms were. The manifestations of *das Über-Ich* in speech do not lend themselves to the sort of pin-pointing that separates *ich*-sentences from *es*-sentences.

Turning to Latin, I have found – with surprise – that the expressions analogous to *das Über-Ich* or 'the super-ego' are again impersonal verbs, quite parallel grammatically to those which we examined as analogous to German impersonals with *es* and English imper-

sonals with *it*. Thus where Freud gives the example, "So (wie der Vater) sollst du sein,"¹⁷ – translated 'You *ought to be* like this (like your father)' – the Latin equivalent would be *tālem oportet esse (quālis est pater)*.¹⁸ The accusative pronoun *tē*, not the nominative *tū*, can be included optionally along with *oportet*, but the pronoun is omitted more often than not, unlike *du* in German or *you* in English.

Now it is possible to convey nearly the same message with an impersonal verb in these modern languages: *es geziemt dir* instead of *du sollst*, and *it behooves you* or *it befits you* instead of *you ought*. But the impersonal alternative is unusual; and unlike the Latin construction with *oportet*, the person – *dir* or *you* – still has to be indicated in German and English, besides the grammatical subject *es* or *it*. All this seems to militate in favor of the subject-pronoun construction, *du sollst*, *you ought*.

A comparison taking in the whole range of Latin impersonal verbs leads me to the conclusion that – merely from the usage of the Latin language – we would find no ground for setting up a category such as the super-ego, distinct from the id. For no difference in treatment appears between *piget*, *libet*, or *taedet* 'I'm sick and tired of it' on one side and – on the other – *oportet* or *paenitet* 'I regret, I'm sorry' or *miseret* 'I pity, I feel sorry for'. One impersonal verb, *licet* 'it's all right' = 'you may', stands out for belonging on both sides. The parent's one word *Licet* amounts to telling the young child 'I won't stop you from what you're about to do'; *licet*, without requiring the dative pronoun *tibi* 'you', gives the adult's approval of this or that impulse. So, as the child grows, he comes to understand that *licet* covers everything that other people will let someone do and get away with.¹⁹

From the Latin impersonal verbs I am tempted to reason that the super-ego, whatever it is, must be more akin to the id than to the ego – in spite of Freud's labels – because such verbs as *oportet* and *libet* belong to the same pattern, in opposition to the first person singular *uolo*. Now Freud's term *das Über-Ich* seems to place *das Über-Ich* squarely above *das Ich*; yet he could scarcely have meant that *das Ich* is just in between *das Über-Ich* above and *das Es* underneath. For at the end of the chapter on "Das Ich und das Über-Ich (Ichideal)" he wrote, "wenn das Ich sein Über-Ich aus dem Es

¹⁷ *Das Ich und das Es* in *Gesammelte Werke*, XIII (1940), 262.

¹⁸ *Complete Psychological Works* (above, note 14), p. 34.

¹⁹ Our word *license* (from the derived Latin noun *licentia*) retains some of the same implication.

schopft"²⁰ – which would allow the two extremes to have a great deal in common.

There may be a noteworthy cultural difference between ancient Latin or Roman society, with its impersonal *oportet*, and the modern European societies in which *du sollst* or *you ought*, spoken by one's elders, leads each of us by and by to say *ich soll* or *I ought*. The verb, requiring a personal subject, is instrumental in making us conscious of norms; for when we begin to say *I ought*, we have both internalized the grammatical interchangeability of the pronouns in combination with the verb and – at the same time – grasped the meaning of this verb in family and social life.

I would not claim to penetrate the subtle depths of psychoanalytic thought. My purpose has been only to explore some linguistic ramifications of Freudianism, which I respect as a philosophic cult rather than a science.

²⁰ *Gesammelte Werke*, XIII (1940), 267. The ambiguity of the German conjunction *wenn* 'when' or 'if' permits the translation "when the ego forms its super-ego out of the id," as given in *Complete Psychological Works* (above, note 14), p. 38; but we could also make it "if the ego," etc.

THE DEFINITION OF THE VERB IN LANGACKER'S COGNITIVE GRAMMAR: HOW TO DEAL WITH GRAMMATICAL MEANING?

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In a discipline dominated by formalization and theory-internal argumentation, the endeavour to take a cognitive approach to grammar based on analytical constructs that are either well-attested independently of language or have prima-facie cognitive plausibility (such as processing time, event coordination, figure/ground alignment, sequential scanning, degrees of schematicity, etc) can only be welcomed as a breath of fresh air in a stuffy room. The return to a focus on meaning as central to virtually all linguistic concerns (Langacker 1987b: 12) is also an important step in the right direction: meaning is what language is all about and the analyst who ignores it cannot but give a distorted image of the object he is purporting to describe and explain. Moreover at a time when the prevailing assumption is that semantic structure is universal, it is a pleasant surprise to find a linguist asserting that:

Lexicon and grammar are storehouses of conventional imagery, which differs substantially from language to language. If one language says I am cold, a second I have cold, and a third It is cold to me, these expressions differ semantically even though they refer to the same experience, for they employ different images to structure the same basic content.

(Ibid: 47)

It comes as somewhat of a disappointment therefore to find the same linguist assuming that nouns and verbs are "universal grammatical categories" for which one can propose "universally valid semantic characterizations" (Langacker 1987a: 1) applicable to all languages and defining verbs as "relational predications ... which profile processes" as opposed to "atemporal relations" (ibid.: 71). This paper will constitute an attempt to show that such an assumption not only goes against the author's own principles but is invalid from the point of view of linguistic methodology. I will also endeavour to put my finger on what it is in the cognitive grammar theory which has led to this type of universalizing approach.

As illustrated by the quote given above, cognitive grammar claims to treat semantic structure as language-specific. It follows from this postulate that if categories such as noun and verb are "semantically definable" (1987b: 189), they can only be meaningfully defined within the framework of each individual language.

Consequently, if one remains coherent with such a principle, the only methodologically valid way of establishing that these two parts of speech are universals would be to do an inventory of all the languages of the world and show that: (1) nouns and verbs are universally attested and (2) their semantic content is basically the same in all cases. This is not however the procedure followed by Langacker: the only language from which he gives examples to illustrate his universal definition of nouns and verbs is English.

The very origin of the terms "noun" and "verb" and of the notion of "parts of speech" is sufficient to call for methodological caution in this question however. As everyone knows, these terms go back to Greek grammar, where the analysis of the sentence into parts of speech was originally a logical division between the onoma ('name') and the rhema ('predicate'), with the latter including not only verbs but also some adjectives which could be predicated directly of a subject (cf Robins 1979: 26-27). This classification was refined into its final form in Greek by Dionysius Thrax (100 B.C.) who distinguished eight word-classes: noun, verb, participle, conjunction, preposition, article, pronoun and adverb. The point which calls for caution is simply this: there is nothing a priori which says that noun or verb, or any other of these Greek categories, must necessarily occur with the same value in any other language. Indeed, as a case in point, Latin grammarians were faced with the embarrassment of not having an article in their own language; their reaction was to create a new part of speech so as to be able to rival the eight-member Greek system at least quantitatively – this is how the interjection was born. If one pursues the universalistic tendency to its ultimate logical conclusion, moreover, one is led to set up a system like that of Brøndal 1948. The latter postulates that since languages have a logical basis, which must be identical for all of them, one can propose a logical scheme of fifteen possible parts of speech which is not realized as such in any known language but which represents the only choices available, according to Brøndal, to all the particular idioms of the world. Deduction from logical categories to linguistic ones is not a methodology which is proper to linguistics however. The latter is first and foremost an inductive endeavour whereby it is only through observation and analysis of how meaning is structured and correlated with the physical sign in particular languages that we can arrive at valid conclusions about how language works in general. In place of Brøndal's logical categories, cognitive grammar seems to be using those of cognitive psychology. But the methodological problem remains basically the same.

Because of this, even on the level of the only language from which examples of verbs are given, the cognitive grammar approach glosses over certain semantic aspects of English verbs which are linguistically significant. For instance, Langacker treats the cognitive content of the verb in English as if it were internally simple; in actual fact, however, it is not. Thus while defining

the verb as a word that designates a process, i.e. that evokes the conceptualization of the sequential evolution of a situation through time, does reveal something about the overall impression produced by this type of word in English, at the same time it disregards the fact that this impression is achieved by the coming together of several semantic components whose presence can be detected by fairly well-recognized methods such as commutation and drawing implications about the internal nature of the verb from observations of how it can be used syntactically. To give an example, the form sings in She sings folk songs can be shown to contain the ideas of:

- a) non-past tense (established by comparison with sang)
- b) indicative mood (compared with He insisted that she sing folk songs)
- c) third person (sings vs sing)

To which one could add, at the expense of more elaborate argumentation:

- d) perfective (or completive) aspect (The form sings represents the event 'singing' in exactly the same way as the bare infinitive form sing, which is in opposition to the -ing form as perfective vs imperfective.)

Surely these components of meaning are important semantic factors in the English verb and are even responsible for the resulting image which cognitive grammar attempts to describe. Cognitive grammar takes a highly synthetic view however, which focusses exclusively on the overall resulting impression and neglects to carry out a prior analysis of what elements of meaning are involved in the production of this impression. This constitutes description of what is observed – of the data – not explanation.

Another related facet of the cognitive analysis where it seems to leave aside facts which are linguistically pertinent is that the cognitive content of the noun or verb is not the same from one language to another. Thus the Latin noun included in its semantic content the notion of case whereas the English noun has eliminated this component and is consequently much more abstract than its case-bound Latin counterpart, being conceivable outside of any particular relation to the verb. That this is linguistically significant has been shown by Hewson (1972) who demonstrates that there is a correlation between the degree of generality of the noun category and the appearance of an article category: the maximum number of cases allowing the development of an article seems to be four; above that the noun is not sufficiently general for the cognitive need for an article to be perceived. Phenomena like this showing the effects of the variation in cognitive

content of what grammarians call a "noun" from one language to another are lost sight of however in the highly synthetic universal definition of the noun as a "predication which designates a region in some conceptual domain" offered by cognitive grammar (Langacker 1987a: 58).

A further unsatisfactory aspect of the cognitive analysis inasmuch as it applies to English is that there are words which have far more in common with Langacker's verb category than with anything else in the English language but which are nevertheless not classified as verbs by this approach. This is the case for both the infinitive and the present participle which not only participate in an aspectual opposition between perfective and imperfective:

(3) I saw him cross/crossing the street,

but are also used in a wide range of syntactic constructions characteristic of the verb such as:

a) use with direct and indirect objects:

To tell/Telling him that is not going to be easy.

b) use in the passive construction:

He let it be known that he was not happy.

I saw him being chased down the street by a dog yesterday.

c) use in the perfect construction:

They are rumoured to have sold their share in the company.

Having said all he had to say, he left.

d) use in the progressive construction:

They are supposed to be waiting for us.

e) use with a predicate adjunct to the subject:

It is no fun to be sick during the holidays.

He is too busy getting rich to think of his family.

Why are these forms not included in the category of the verb when they have so much in common with the finite forms that are classified as verbs?

The answer to this and many of the other questions raised in this paper lies, I believe, in the fact that Langacker's criteria of classification and analysis are cognitive and not linguistic. In his desire to avoid formalistic and theory-internal analytical constructs, he seems to have gone to the opposite extreme of dealing with language as if it was pure cognition, i.e. as if it was merely a mirror of the perceptual and conceptual processes common to all human beings. That each language should reflect such processes is undeniable. But each one does so in its own idiosyncratic way, something which cognitive grammar recognizes in theory but which in practise gives way to an exclusive focus on universal cognitive processes in the case of the definitions of the noun and verb as we have seen in this discussion. If one looks only for universals however, one will find only universals, and consequently what is specifically linguistic will be lost sight of, i.e. what makes each language what it is and is due to the fact that in humans language is a learned and not a species-determined phenomenon as it is with bumblebees and song sparrows. By invoking only analytical constructs established independently of linguistic research by cognitive psychology and related sciences, cognitive grammar is inherently predisposed to universalism of this sort however. Psychology is concerned with cognitive processes which are common to all human beings; linguistics is not, at least not as a starting-point for linguistic research.

Cognitive grammar has originated from a healthy distrust of a certain form of linguistics which works almost exclusively with theory-internal argumentation. It would be a pity however if this distrust of linguistics were to turn into a distrust of language itself as an indicator of cognitive processing. For language is undoubtedly the most precise and subtle instrument for indicating to another human being what is going on inside one's own mind. Through the essential relation on which it is based – that between sign and significate – it allows the hearer to mentally reconstruct a representation of the experience had by the speaker, something which makes language unique among the products of man's cognitive abilities. If, in the way language is actually used, the hearer behaves as if the most efficient way to grasp the cognitive content present in the speaker's mind is to pay close attention to the linguistic signs he is emitting (which always belong to one particular language) and let them call to his own mind the significates they evoke, should not the linguist also focus his attention first and foremost on investigating how sound is linked to sense in particular languages before chasing after universals? Let us have a healthy distrust of linguistics, and especially of linguists, but never of language itself.

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PROTOTYPICALITY AND IDIOMATICITY

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1. Preliminary Remarks. The noun plays a crucial role in 'verb+object' idioms. In such examples as lose face, make headway and take place, the nouns are considered to have a low degree of nouniness (cf. Ross (1973)). This fact can be simply demonstrated by such grammatical tests as are all applicable to ordinary nouns:

- a. *What did he lose?
- b. *Headway, she made (it) in her thesis.
- c. *The meetings took occasional places.

These irregularities have been mostly discussed in the domain of grammar (for instance, Fraser (1970)). The present paper attempts to shed certain light on the structure of such 'verb+object' idioms¹ synchronically and diachronically, with particular reference to the theory of the prototype, thereby establishing more universal generalisations about idiom formation.

2. Previous Studies of the Prototype. The theory of the prototype has its origin in psychology, but has been applied to linguistic analyses during the past decade (Aitchison (1987), Coleman and Kay (1981), Fillmore (1978), Lakoff (1987), Taylor (1989) and Tsohatzidis (1990)). Except Lakoff, who refers briefly to idioms, they have made no reference to idioms. The concept of 'prototype' enables us to distinguish between the central and peripheral examples of a category.²

According to Langacker (1987) and Hopper and Thompson (1984), prototypical nouns have the following properties: (1) visibility/tangibility, (2) referentiality, (3) definiteness, (4) concreteness, (5) countability, and (6) salience/prominence (in discourse).

Without going into the details of these properties, and while accepting that they are applicable to ordinary nouns such as boy, dog and house, I will take 'body' nouns as examples and apply the properties to them. Body nouns may not be discussed on the same footing as ordinary nouns, but they are useful for the present argument?

3. Prototype and Idiom. The word face has visible, referential, definite, concrete and countable properties as in the following sentences:

- a. I saw many familiar faces.
- b. She fell flat on her face and hurt it slightly.

The following examples of face, which are arranged on a scale of idiomaticity, show morphological and semantic changes:

- a. Don't show your face again here.
- b. She pulled a face when I mentioned his name.
- c. I don't want to lose face with my colleagues.

As suggested above, as the noun loses its prototypical features, the phrase including the noun becomes more idiomatic, with syntactic irregularities and semantic departure from its original meaning. Particularly in c., face is not literal and, together with the verb, forms an idiom meaning 'to be disgraced' as a whole. As is often the case with 'verb+object' idioms, nouns lacking certain nouny properties are incorporated into the previous verbs in the sense that the nouns have lost their morphological and semantic independence. This incorporation caused by the loss of prototypical features is found in other body noun idioms such as drag one's feet, set foot on/in; keep one's eyes off, keep an eye on.

Chafe (1968) mentions four properties of idioms: (1) non-deducibility of meaning, (2) transformational deficiency, (3) ill-formedness of some idioms, and (4) textual frequency of idiomatic meaning over literal meaning. Property (3) can be seen in a very few cases such as by and large and trip the light fantastic and can be ignored here. Property (2) is mainly grammatical, implicitly taken for granted in the treatment of idioms. That is, idioms usually resist some transformations such as passivisation and topicalisation. I will focus attention on properties (1) and (4).

The meaning of an idiom often cannot be deduced from its constituents. In the well-quoted example, kick the bucket, the meaning of 'die' cannot be deduced from 'kick+the+bucket'. On the other hand, in such idioms spill the beans and drag one's feet, it seems that the idiomatic meanings are not completely impossible to deduce from the constituents. Where does this difference come from? One important point between these idioms is that drag one's feet, spill the beans and kick the bucket, in that order, have different degrees of closeness of the literal meanings to the idiomatic meanings. The meaning of 'to act in a slow way' in the first idiom is easily connected with its literal interpretation, but in the

idiom kick the bucket, there seems to be no immediate connection. Spill the beans seem to be in-between.

Textual frequency of idiomatic meaning over literal meaning has a connection with the argument given above. Those idioms that contain more prototypical nouns have both meanings, and the ratio of textual frequency of idiomatic meaning becomes low as the prototypicality of the noun becomes high. Such idioms as clear the air, drag one's feet, tighten one's belt and turn the corner have both idiomatic and literal meanings, because the nouns there retain a certain amount of prototypicality. The dominance of idiomatic meaning over literal meaning becomes stronger when nouns lose their prototypical features such as definiteness, referentiality and countability. Theoretically speaking, those idioms that retain a high degree of prototypicality have both idiomatic and literal meanings, and the determination of the meanings depends on the context in which they are used. Grammatical transformations reflect the extent to which an idiom has lost its literalness. Those 'verb+object' idioms can passivise, as long as the distance between idiomatic and literal meanings is short and the literal meaning can undergo passivisation. But when the distance is not short (ex. kick the bucket), passivisation is not possible, even if the literal meaning can undergo passivisation.

Lakoff(1987: 447-53) argues that an idiom has no arbitrary meaning, and instead has motivation which consists of a link of the form image+knowledge+metaphor on the basis of the conceptual and cognitive system the speaker has. Speakers of a language have similar images and make similar associations between an idiom and its meaning. This is the reason they understand idioms correctly, even when they hear them for the first time.

As regards the idiom spill the beans, speakers have the same images as follows (Lakoff (*ibid.*: 449-50)): (1) The container for the beans is always about the size of the human head. (2) It is not barrel size, or silo size, or the size, say, of a small mustard jar. (3) The beans were supposed to be kept in that container. (4) The spilling is, or appears to be, accidental. (5) The beans are never spilled into a neat pile; instead, they go all over the place. (6) They are never easy to retrieve. (7) The spill is always messy.

In addition, parts of idioms may have metaphorical referents. Thus, the beans in spill the beans refers to the information that is supposed to be kept secret. Spill refers to making that information

public. That the beans is a noun phrase which has a referent enables the idiom to be passivised.

The explanation Lakoff gives for the idiom spill the beans will be extended to other idioms, although each idiom may have a variation to differing degrees. His explanation is, on the whole, convincing, but still some questions arise. Let me point them out.

The beans in such an idiom as give a person beans (COD) seems to differ from those of spill the beans. If so, how does the native speaker of English interpret both kinds of beans? It seems unnatural in terms of human cognition to assume that the same objects in these 'verb+object' idioms have different senses.

A second question arising from Lakoff's explanation has to do with the issue of idiomatic versus literal meaning. In the following example, the idiom seems to have both meanings – idiomatic and literal. Where is the borderline that distinguishes between the meanings?

- a. She spilled the beans all over the town.

On another point, Lakoff mentions the passivisability of the idiom spill the beans, which has the referent. But the idiom kick the bucket, which has the referent as well, cannot passivise. It seems to me that to have a referent and to be passivisable are different matters.

Nevertheless, as Lakoff suggests, there is a considerable amount of correspondence between cognitive associations. The following examples illustrate the possible transition from the explosion of a volcano to human anger:

- a. Mount Pinatubo's blasts came just one week after Japan's Mount Unzen blew its top, with more deadly results.

(Time, June 24, 1991, p. 62)

- b. An intimate would have known the danger signs – Dr. Person was ready to blow his top.

(The Final Diagnosis, 1959, p. 173)

In Japanese, too, 'to explode one's anger' is associated with the explosion of a volcano. The substitution of an animate subject for a non-animate one often takes place, giving rise to metaphorical extension.

Grice (1975: 45-6) proposes the Cooperative Principle, under which four categories of maxims are distinguished: Quantity, Quality, Relation and Manner. Putting aside the various possible criticisms of his hypothesis, one of his contributions is the emphasis he places on the use of inference in commu-

nication. While it is true that in human communication, a speaker's intention is communicated through the encoding and decoding of messages, Grice points out that humans can still communicate successfully on the basis of their inferential abilities by means of which they can communicate successfully despite the absence of a code. In Grice's theory, the use of idioms can be partly considered as flouting the maxims, particularly, considering the need to pass over the literal meaning to arrive at the idiomatic meaning, the maxim of quality. When a speaker uses an idiom, a hearer tries to decide on which meaning — idiomatic or literal — is being used, assuming that the speaker observes the principle. Although the hearer tries to infer the meaning of the idiom on the basis of the Cooperative Principle, he/she sometimes fails in making the inference partly because it is his/her first encounter with the idiom, which has no link between idiomatic and literal meanings. In that case, the idiom can be said to be being misused in the sense that the idiomatic meaning was not properly conveyed, and that the literal meaning did not fit the context.

One advantage of using idioms with both idiomatic and literal meanings is to make conversation or a dialogue more interesting. The following example taken out of my reading is interesting in that both idiomatic and literal meanings are exploited:

- a. "You think they would rally to him?"
 He saw my expression. "Henry Morane, you are pulling my legs!" "Pulling your legs? God forbid." I said devoutly.
 "Since legs are only pulled to help strangle a poor wretch on the gallows to end his misery."

(Farrington, The Killing of Richard III, 1971, p. 13)

The use of pulling a person's leg in this context may be slightly awkward, because leg in its idiomatic sense is normally in the singular. But the point is that the author attempts to combine the idiomatic and literal meanings to make the dialogue interesting.

4. Prototype and the Verb. So far I have concentrated on the prototypicality of nouns. Since 'verb+object' idioms consist of verb and noun elements, we must naturally turn to the prototypicality of verbs.

Pulman (1983: Ch. 5) carried out the experiment to see whether or not there are prototypes for verbs, and concluded that no very clear overall judgment of prototypicality would appear (112). But in connection with idioms, two concepts — hyponymy and nuclear

verbs — which are interrelated, are worth considering.

According to Crystal (1991: 168), hyponymy is the relationship which obtains between specific and general lexical items, such that the former is 'included' in the latter. And as regards nuclear verbs, Dixon (1982: 74) says: "The nuclear verbs can be componentially described in terms of a small number of rather general features." Thus, 'give', for example, is a nuclear verb with some non-nuclear hyponyms as follows (Dixon (*ibid.*: 122-39)):

give

donate	present	award	pay	lend	sell	rent	...	

Other verbs having such relationships are given below (cf. Pulman (*ibid.*: 110)):

speak

whisper	mumble	shout	drowe	recite	stutter	...		

take

seize	snatch	grab	grasp	clutch	capture	...		

What is of particular interest is that usually only nuclear verbs form idioms.⁵ Thus,

- | | | |
|----|---|------------|
| a. | <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> give
 *donate
 *present
 *award </div> <div style="font-size: 3em; line-height: 1;">}</div> </div> | way |
| b. | <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> speak
 *whisper
 *mumble
 *shout </div> <div style="font-size: 3em; line-height: 1;">}</div> </div> | one's mind |
| c. | <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> take
 *seize
 *snatch
 *grab </div> <div style="font-size: 3em; line-height: 1;">}</div> </div> | place |

But an exchange of verbs takes place in some idioms as follows:

- | | | |
|----|---|---------------|
| a. | <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> pay
 give </div> <div style="font-size: 3em; line-height: 1;">}</div> </div> | attention |
| b. | <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> give
 lend </div> <div style="font-size: 3em; line-height: 1;">}</div> </div> | credence (to) |

c. throw } light (on)
 cast }
 shed }

These combinations have a low degree of idiomaticity in the sense that the meanings of the idioms are transparent. Although there seem to be some prototypical verbs that form idioms, more investigation is needed to establish a class of nuclear verbs in relation to idiom formation.

The example of categorizing nouns on the basis of the prototype is shown below:

```

      Animal .....superordinate category
      |
  bird  dog  horse  cow ... ..natural category
  |
 robin  turkey  sparrow ... ..subordinate category
      (Cf. MacCormac (1985: 95-99))
  
```

I In relation to idiom formation, the superordinate category 'animal' does not contribute much to idiom formation, and instead the natural category (= the hyponyms of the superordinate category) usually participates in the formation. Let me contrast the categorization of nouns to that of verbs in order that we can have a better understanding of idiom formation:

```

      Animal                      Nuclear Verb
      |                              |
  bird  dog  horse  cow ...  give  have  make  take ...
  |                              |
 robin  turkey  sparrow ...  donate  present  award ...
  
```

Of the categories, the natural categories are the ones we must use most often in our everyday perception of the world. If idioms are considered to reflect in some ways such perception, it is no wonder that the categorization of nouns and verbs and idiom formation correspond to a considerable extent, for idioms are the most conspicuous manifestations of the culture within which a language is used. Although I believe that I am on the right track in the pursuit of idiom formation, I find that more sophistication is needed in developing the idea.

5. Prototype and Incorporation. In opposition to the retention of prototypical properties, there is a process of incorporating these properties into the previous verbs.⁶ The incorporation is one way of producing idioms. I should like to examine idiom formation diachronically in terms of incorporation.

According to The Oxford English Dictionary, the idiom set foot on seems to have undergone the following process of change:

set one's feet at/in/on → set foot at/in/into/on
→ set foot on/in

As this change shows, 'feet' lost 'one's', an indication of the prototypical features of the body nouns, and was fossilized into the singular form.

In the idiomatic phrase lose sight of, the noun sight had some prototypical features as was evidenced by the following citations:

- a. They loste ye syght of ye castell,
it was clene vanysshed a way.
(OED II.4. al533)
- b. But no sooner lost shee once the sight
of him [etc.]
(OED II.4. 1635)

The loss of prototypical features has brought about the incorporation of 'sight' into the verb, finally forming an idiomatic unit.

Incorporation is often caused by semantic changes from literalness to abstractness. It can be said that as far as the noun keeps its prototypical properties, it has a literal meaning, but that according as the noun loses its prototypicality, its meaning takes on abstractness. The idiom take shape is another piece of evidence for this change. The noun 'shape' was concrete with the indefinite article:

- a. Things begin to take a shape.
(OED 11.1756)

Incorporation has had repercussions over other linguistic areas. For example, in the idiomatic phrase set on fire, the fire can be said to retain its nouniness, but in set fire to, the fire hardly retains its nouniness, having a verbal force as a whole (= ignite?). As the noun is incorporated into the verb, the phrase becomes verbal, taking on some prototypical features of the verb, such as activity or event (cf. Hopper and Thompson (1984: 708)). In other words, the loss of the prototypical features of the noun has brought about the change from stative-ness, which characterises the noun, to dynamicness, which characterises the verb. That is, the verbal phrase has developed 'aspect'. Other examples which support my statement are: give rise to, make use of, pay attention to and take care of.

What strikes me as interesting as regards these examples is that, while these idiomatic phrases retain verbal features, the verbs seem to contribute little to the construction of the meaning, and the nouns seem to play a more central role in the meaning.

In such examples, the fact that the verbs which form the idiomatic phrases given above have no particular content, and are most frequently used seems to explain part of the reason.

On the other hand, in such idioms as spill the beans and kick the bucket, the fact that they have both idiomatic and literal meanings shows that both verbs and nouns contribute to the construction of the meaning. In the process of use, the idiomatic meanings have come to predominate literal meanings presumably because the nouns used there have lost much of the literal meaning, giving full scope to idiomatic interpretations.

6. Concluding Remarks. I have discussed the relationship between the prototype theory and idiomaticity both synchronically and diachronically, and demonstrated the validity of the theory in relation to idiom formation. The formation of idioms is a complex process involving the interaction of linguistic, psychological and cultural factors.

So far most studies of idioms have tended to concentrate on their idiosyncratic properties (Fraser (1970) and Makkai (1972)). But at the same time we should not overlook the properties of idioms as parts of linguistic universals. It seems that the ways in which specific idioms are interpreted are specific, but the process of using and deciphering idioms is universal. The question that arises is how culture-specific and universal factors interact in the understanding of idioms. The prototype theory must contribute much to the clarification of the universal aspects of idiom formation in a broad perspective involving human perception and cognition.

Notes

- * I should like to thank Dr Sheila Hones for reading and making comments on an earlier version of the present paper.
- (1) It is of interest that the object, not the subject, usually participates in the formation of most idioms. Since this tendency can be identified in both English and Japanese, it is worth investigating whether or not this generalisation can be extended to other languages.
- (2) Taylor (1989: 59) says: "There are two ways in which to understand the term 'prototype'. We can apply the term to the central member, or perhaps to the cluster of central members, of a category. ... Alternatively, the prototype can be understood as a schematic representation of

- the conceptual core of a category." Against the prototype, Fillmore (1973) advocates the 'check-list' theory.
- (3) Hopper and Thompson (1984: 726) says: "... the body part, which is low in categoriality, is, from a semantic point of view, just as 'referential' as its owner...."
 - (4) But see Makkai (1978: 415)
 - (5) This can be said of Japanese, where nuclear verbs such as 'toru' (to take), 'miru' (to see) and 'suru' (to do) form most idioms, whereas the nouns in idioms are varied.
 - (6) Mithun (1984: 848) refers the term 'incorporation' to a particular type of compounding in which a V and N combine to form a new V. But the concept can be extended to idiom formation, as will be demonstrated below.

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ON THE MEANING OF THE DATIVE IN POLISH

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While the nominative is par excellence the case of the grammatical subject in IE languages, and the accusative, primarily the case of the direct object, the dative has been traditionally seen as the case of the indirect object, denoting the recipient (most frequently human) of the action expressed by the verb.

John Gallup has recently proposed a series of psychomechanical representations of case systems in IE case languages which have from eight cases (Sanskrit) to one case (French). In his diagrams the nominative and the accusative, which represent two 'antonymic' situations in a sentence are placed at the opposing ends of the vector representing the event in time. In the diagramme for a language with seven cases, such as Polish, dative (in active voice sentences) occupies the position between that of the nominative subject and that of the accusative object (Gallup 1991:20) which suggests that the role of the dative-marked element in Polish sentences is seen as being neither purely that of an agent nor clearly that of a patient.

In the classification of cases proposed by Kuryłowicz (1949) for IE languages the dative is included in the group of the "concrete" cases (dative, locative, ablative, instrumental) which are characterized by their semantic rather than syntactic functions and opposed to the "grammatical" cases (nominative, accusative, genitive) which can be identified and defined in terms of their syntactic functions.

In her semantic study of the Polish dative contained in "The Semantics of Grammar"(1988) Wierzbicka expresses an opinion that the meaning of the dative case in a particular language can be described "with full predictive power" only if an exhaustive "list of semantic constructions permitting the use of dative in this language" is provided (1988:393, 427). She proposes a meaning-based taxonomy of 31 Polish constructions with the dative case. In her conclusion about the meaning of these dative constructions Wierzbicka suggests that the presence of the dative case implies a situation which "is not controlled by a person Z but is likely to have an effect on that person" (1988:427). She observes that this general description of the meaning of dative is not really restricted to Polish but may apply to other case languages such as Latin, Russian or German (Wierzbicka 1988:427). The only language-specific characteristic of the Polish dative Wierzbicka seems to suggest is contained in her observation that the Polish dative is 'dynamic' in nature, a remark by which she means that it "seems to always imply a change or a possibility of a change" (Wierzbicka 1988:397).

It should be observed that both Gallup's diagrammatic representation of the Polish dative and Wierzbicka's inventory of the Polish dative uses are restricted. Gallup's diagram applies only to sentences with active voice verbs, and Wierzbicka's descriptions exclude constructions with lexically governed datives (ex.1) as well as sentences with dative-marked substantives that denote things or non-human beings (ex. 1). In order to give a global assessment of what might be called 'the dative situation in Polish' elements

of Polish constructions with a dative such as: a. the type of the predicate (with a transitive, intransitive, reflexive or impersonal verb), b. the presence or absence of the direct object in the sentence (lexically governed datives versus datives of the indirect object), and c. the presence, absence and type of the grammatical subject (human versus non-human subjects; epistemological versus grammatical subjects; 0 subjects) will have to be taken into consideration.

In this paper I will examine the meaning of the Polish dative in the light of the semantic inventory of dative types proposed for Polish by Wierzbicka (1988:427-433). The structures considered will include sentences with lexical verbs that govern dative-marked substantives (ex. 1) and 'free' dative constructions that are represented by sentences with transitive verbs (ex. 2), sentences with reflexive verbs (ex. 3), sentences with intransitive verbs (ex. 4) and sentences with impersonal predicates (ex. 5) including those with predicative adverbs (ex. 6):

- 1 Jan uwierzył moim słowom.
'Jan believed my words-DAT.'
- 2 Jan podarował mi naszyjnik.
John gave as gift me-DAT necklace.
'John gave me a necklace.'
- 3 Podoba mi się twój dom.
Pleases to me-DAT itself your house.
'I like your house.'
- 4 Uciekł mi pociąg.
Left(escaped) on me-DAT train.
'I missed the train.'
- 5 Huczy mu w głowie.
It is buzzing to him-DAT in head.
'He has a headache which feels like a buzz in his head.'
- 6 Dobrze mi było z wami.
Well to me-DAT was with you.
'felt well with you.'

Traditional Polish grammarians (see Doroszewski 1980:67) define the Polish dative as the case of the indirect object designating the recipient of the action denoted by the verb. The Polish name of the case "CELOWNIK", which means "target", suggests that the case designates a being or an object the event in a sentence is aimed at. Following in the footsteps of Jakobson (1936) Wierzbicka (1988:391) tries to identify the core (i.e. cross-linguistic) meaning of dative in IE languages using the notion of the recipient with reference to structures that represent what she calls "sentences of GIVING".

If the notion of the recipient is to apply to the wide range of structurally varied sentences (as those in examples 1-6) the meaning the word "recipient" needs to be clarified. The term "recipient" should be understood in its broad sense referring to factual

recipients (ex. 2) as well as to 'potential' or 'intended' recipients (ex. 7). The action of giving in ex. 2 implies the action of receiving. An object cannot be truly given until it is received, just as it cannot be bought until it is sold. Actions such as giving or buying necessarily imply the existence of a receiver or a buyer. The fact (ex. 7) that John sent a parcel to Mary does not necessarily mean that she received it.

- 7 Jan wysłał Marysi paczkę.
John sent Mary-DAT parcel.
'John sent a parcel to Mary.'

The fact that the dative-marked substantives can denote either factual or intended recipients of the action performed by the subject suggests that the being or thing designated by a dative case substantive can be characterized as possessing the capacity to become the recipient of the action. As Gallup and Tessier (1987:14) observe the capacity to receive is an active capacity, different from the passive capacity characterizing the accusative-marked objects. ("L'objet n'est pas reçu si un sujet ne réalise pas l'action de recevoir".) This active capacity to receive may be an important semantic factor distinguishing the substantives in the accusative situation from the substantives in the dative situation.

Most actions can be described as affecting their dative-marked recipients in a positive or a negative manner. Positively affected recipients will be those that come to have or come to have more of something, come to see, hear, learn or otherwise experience something positive as the result of their participation in the event, whereas negatively affected recipients will be those that have come to experience the event negatively. Examples 8 to 11 below illustrate usages that can be classified as affecting the recipient negatively whereas usages represented by examples 12b to 14 can be described as reporting a positive effect of the action on the dative recipient. The types examples 8 to 14 illustrate do not exhaust the list of semantic possibilities in the use of the Polish dative. Sentences 8 to 14 are quoted here mainly because none of them fit the semantic formulae for the Polish dative proposed by Wierzbicka. Since they are not easily describable in terms of Wierzbicka's inventory of semantic types, dative situations in these sentences require a comment.

- 8 a. Adam schował mi but.
Adam hid me-Dat shoe.
'Adam has hidden my shoe on me.'
- b. Adam zgasił mi światło.
Adam switched off me-DAT light.
'Adam switched off the light on me.'
- c. Adam wyłączył mi radio.
Adam turned off me-DAT radio.
'Adam turned off the radio on me.'
- d. Adam ukradł Ewie jabłko.
Adam stole Eve-DAT apple.
'Adam stole an/the apple from/on Eve.' (Wierzbicka 1988:396)

Examples in 8 describe situations that can be classified as illustrations of what Wierzbicka calls "agendive loss" (p.396), with her example of the usage given in sentence 8d, impossible to render in English by means of the so-called internal dative structure. In examples 8a and 8b the dative-marked participant is CAUSED NOT TO SEE the object designated by the substantive in the accusative, and we might perhaps say that in the situation of 8a he is CAUSED NOT TO KNOW where his possession (the shoe) is. In example 8c the recipient of the action is CAUSED NOT TO HEAR what is denoted by the accusative-marked direct object, and in example 8d he is CAUSED NOT TO HAVE the object. Wierzbicka's formulae seem to account for positive situations only, defining recipients who are CAUSED TO SEE (formula #6), but not those CAUSED NOT TO SEE, recipients who are CAUSED TO HEAR FOR PLEASURE (formula # 7) but not those who are CAUSED NOT TO HEAR, recipients who are CAUSED TO HAVE (formula #1) but, strange as it may be in view of the example of agendive loss quoted in the text, not those who are CAUSED NOT TO HAVE. Example 8a (and possibly also 8d) cannot be interpreted as illustrating situations where a CHANGE was CAUSED IN SOMEONE'S POSSESSIONS (formula #11) for the possessions of the affected participants were not really changed; the objects simply ceased to be theirs.

- 9 a. Przyplątało mi się jakieś paskudne przeziębienie.
Attached to me-DAT itself some ugly cold.
'Some ugly cold has 'adopted' me.'
- b. Ein Hund ist uns zugelaufen.
A dog has us-DAT run-to
'A dog has "adopted" us.' (Wierzbicka 1988:394)
- c. *Przybłąkał nam się jakiś pies.
- d. Jakiś pies przybłąkał się do nas.

Example 9a illustrates a situation in which the recipient has contracted an illness, a situation which seems to me to fall into the category denoted as 'spontaneous acquisition'. Wierzbicka claims that in Polish one cannot use a dative for spontaneous acquisition while in German (ex.9b) this dative usage is quite normal (Wierzbicka 1988:394). While the Polish translation of the German example in question does not allow a dative structure (9c) but a prepositional phrase has to be used (9d), sentences with the verb *przyplątać się* = *to come unrequested, to attach itself to somebody*, (used in 9a and synonymous with *przybłąkać się* of 9d) are quite possible when what is acquired in this 'spontaneous' manner can be called an illness.

- 10 a. Adam wyrządził Ewie krzywdę.
Adam did Eve-DAT wrong.
'Adam wronged Eve.'
- b. Adam zadał Ewie ból.
Adam caused Eve-DAT pain.
'Adam caused Eve'pain.'

- c. Adam sprawił Ewie przykrość/ przyjemność.
 'Adam did Eve-DAT something painful/ something pleasant.
 'Adam made Eve feel bad/ good.'

Sentences in example 10 describe situations in which the dative-marked recipient of the action performed by the subject agent is CAUSED TO FEEL something, mostly unpleasant, with the exception of the positive possibility in 10c. The feeling of pain (or pleasure) he experiences is not necessarily physical, often (as in 10a and 10c) exclusively mental. Wierzbicka claims (1988:393) that Polish, in contrast to German, cannot use a dative to designate a person caused to feel something. This statement is certainly too strong, and she modifies it later in the text saying that "feelings and sensations CAN trigger the use of dative - on the condition, however, that neither a human agent nor a localized inanimate causer is mentioned" (1988:420). However, a human agent is present in sentences of example 10, and in situations of example 11 describing unpleasant UNINTENTIONAL SENSATIONS experienced by the recipient (see also ex. 5), the localized cause which can be attributed to a bad state of the recipient's body part is clearly indicated by the sentence subjects.

- 11 a. Dokucza mi wątroba.
 Is bothering me-DAT liver.
 'My liver is bothering me.'
- b. Nawala mi serce.
 Is going out of order me-DAT heart.
 'My heart is giving me trouble.'
- c. Krwawi mi nos.
 Is bleeding me-DAT nose.
 'My nose is bleeding.'
- d. Swędzi mnie/* mi noga.
 Itches me-ACC/*DAT leg-NOM.
 'My leg itches.'

The type of sensation experienced by the recipient in situation 11c does not seem to be significantly different from the sensation described with the help of the accusative-marked object in situation 11d unless bleeding is perceived as typically less intensive than itching. Therefore, Wierzbicka's observation that "intense sensations such as pain or itchiness require the accusative because they make one feel that there is a direct and localized physical cause" (1988:419) does not seem convincing especially that unlike in example 5 which represents the same category of UNINTENTIONAL SENSATIONS with the body part affected rendered by means of a prepositional phrase, the body part causing the problem in examples 11a,b,c is indicated by the nominative subject agent.

In the set of dative situations that affect the recipient of the action in a positive way, usages in 12, 13, 14 will only be signalled as possible ways of supplementing Wierzbicka's inventory, while the use illustrated in 15c as opposed to 15d will require some discussion.

Discussing the use of dative in Polish sentences that describe situations affecting the recipient in an indirect manner, through events that involve persons related to the recipient (as in ex. 12) Wierzbicka observes that a dative can be used "to refer to a person affected by an agentless event involving a related person, provided that the effect is bad, both for the person directly involved and for the one indirectly affected" (1988:405). Her negative example is given in 12a but my examples in 12b and 12c suggest that Wierzbicka's formula #14 (SOMETHING BAD HAPPENING TO A RELATED PERSON) might need to be modified to account for positive situations as well.

- 12 a. Żona mu umarła.
Wife him-DAT died.
'His wife died (on him).' (Wierzbicka 1988:405)
- b. Nareszcie mi wyzdrowiałaś/wydobrzałaś córeczko.
Finally me-DAT you got well, daughter-VOC.
'Daughter, you have finally got well (for me).'
- c. Ależ ci córka wyładniała.
Wow (surprise, admiration) you-DAT daughter-NOM got pretty.
'Hasn't your daughter got pretty (to you).'

Example 13a also indicates that an unexpected ACCIDENTAL CHANGE IN SOMEONE'S POSSESSIONS (FORMULA #11) does not have to be necessarily bad, as Wierzbicka's formula #11, illustrated by 13b, would have it:

- 13 a. Hura! Auto mi zastartowało!
Hurrah! Car me-DAT started!
'Hurrah! My car has started!'
- 13 b. Zepsuł mi się zegarek.
Broke me-DAT itself watch
'My watch broke.'
(Wierzbicka 1988:429)

Finally, examples given in 14 suggest that actions performed for the recipient's pleasure do not have to be limited to those HEARD FOR PLEASURE (formula 7; example 14a), but may also include actions DONE FOR PLEASURE, to please the recipient's eye (14b) or to cause a pleasant sensation in/to? his body (examples 14d and 14c):

- 14 a. Zagrała mu walca.
'She played him-DAT a waltz.'
- b. Aurea zatańczyła nam flamenco.
'Aurea danced us-DAT a flamenco.'
- c. Jan otulił mi plecy.
John covered me-Dat shoulders.
'John covered my shoulders.'
- d. Podrap mi plecy.
Scratch me-Dat back.
'Scratch my back for me.'

- e. Kot podrapał mi twarz.
 Cat scratched me-DAT face.
 'A cat scratched my face.'

It might be argued that example 14c can be interpreted as an agendive counterpart of type #18 (COMING INTO CONTACT WITH BODY PART) but on this interpretation the fact that the action was performed for the recipient's pleasure will be ignored. The dative situation in 14e is a clear illustration of formula #17 (CAUSING A CHANGE IN A BODY PART) where the affected body part comes to look different as the result of the action expressed by the verb. The situation described by example 14d, however, where the same lexical verb *drapać*=*scratch* is used, excludes the possibility of a permanent change in the body part involved. The recipient's back is scratched to cause the sensation of pleasure, and the 'personal' verb of physical action used in this sentences can be interpreted as an expression or communication of positive feelings (care, desire to give pleasure) towards the recipient. According to Wierzbicka's discussion and description of situations where verbs of action are used to convey personal feelings (1988:414) the accusative, not the dative should be the case to employ here ("Polish requires the affected person to be the direct (accusative) object of personal verbs such as *uderzyć*=*hit*, *pocałować*=*kiss*, *pogłaskać*=*stroke*."). Consequently, sentence 14d constitutes a problem for Wierzbicka's interpretation of the accusative and the dative situations involving an expression of the agent's feelings and the subsequent sensations produced in the recipient.

Examples juxtaposed in 15 raise a provoking question about the difference in meaning between the accusative and the dative situations used in the circumstances that appear quite similar.

- 15 a. Jan uderzył mnie/*mi w głowę.
 'Jan hit me-ACC/*me-DAT on the head.'
- b. Jan dał mi/*mnie w zęby.
 Jan gave me-DAT/*ACC in the teeth.
 'Jan hit me in the teeth.'

Wierzbicka's contention that in the accusative situations the effect is seen globally and that the person tends to be more affected than the body part while in the dative situations the affected person is treated as the secondary object of the action (1988:414) does not seem to be entirely convincing in view of situations such as that in 14d where the action is performed for the recipient's (not really his body's) pleasure. A juxtaposition of Polish sentences with the same lexical verb occurring with either the accusative or the dative given in example 16, however, does suggest that the accusative tends to be used when the action is seen as applying to the human person globally (person treated as a WHOLE) and thoroughly (especially with verbs denoting examination or investigation), whereas the dative is used when the action is seen as affecting an element viewed as a PART of the human experienter (his body part, ability, even possession).

- | | go=ACC | mu=DAT |
|-------|---|---|
| 16 a. | Zbadał go dokładnie.
He examined him thoroughly. | Zbadał mu wzrok.
He examined his eyesight. |

- | | | |
|----|---|---|
| b. | Zmierzył go wzrokiem.
He measured him with his eyes. | Zmierzył mu gorączkę.
He measured his fever. |
| c. | Zbili go na kwaśne jabłko.
They beat him black and blue. | Wybili mu szybę.
They broke his window. |

Examples in 17 suggest that the accusative is preferred with verbs of action used in its primary, physical sense while the dative is more appropriate in colloquial expressions with verbs of action used figuratively, with reference to mental or intellectual abilities.

- | | | |
|-------|---|--|
| 17 a. | Uderzył go w twarz.
Hit him in face.
'He hit him in the face.' | Sukces uderzył mu do głowy.
Success 'hit' him to head.
'Success made him proud.' |
| b. | Rzucił go do rowu.
Threw him in ditch.
'He threw him in the ditch.' | Rzuciło mu się na rozum.
Threw him itself on brain.
'His brain was affected.' |
| c. | Palnął go w ucho.
'Fired' him in ear.
'He hit him in the ear.' | Palnął mu prawdę w oczy.
'Fired' him truth in eyes.
'He told him the truth.' |

Even if the contrastive examples in 16 and 17 do not lead to significant conclusions about the meaning of the dative as opposed to that of the accusative in Polish, systematic differences observed in sentences with the verbs of examination and the verbs of action seem interesting to point out in view of a possible semantic discussion of lexical verbs that govern accusative or dative-marked objects.

In addition to being used in the function of indirect objects in sentences with verbs in the active voice (examples in 2) and as objects of lexical verbs that govern the dative case (ex.1), dative-marked substantives in Polish are perhaps most frequently found in structures with impersonal predicates (examples 5,6) with no agent overtly indicated by the grammatical subject, and in structures with reflexive (ex.3) or intransitive verbs (ex.4), which, just as structures with lexical verb-governed datives, have no passive voice equivalents. The dative-marked substantive in this group of structures can still be viewed as the recipient or even the target of the action but it is hard to point to a concrete agent in the event that caused the recipient to be affected. Wierzbicka distinguishes 10 semantic types in the group of Polish "datives without external causes" that contain sentences expressing events that happen to the recipient of the action without his conscious intention and beyond his control (examples 4,5,6.) The use of the dative in sentences with impersonal predicates as well as in those with some reflexive and intransitive verbs seems to be the most appropriate grammatical solution for focusing the event on the human recipient without mentioning directly the forces that have brought the event about. Recent grammars of Polish (Urbanczyk 1991:254,278; Grzegorzczkowska, Laskowski, Wrobel 1984:168) describe the dative in impersonal sentences (such as 5,6) as obligatorily fulfilling the grammatical function of the so-called "epistemological subject". In the group of datives without external causes distinguished by Wierzbicka the description of the use identified as UNINTENTIONAL THOUGHT (formula #24) could be modified to include examples in 18 that illustrate what might be called UNINTENTIONAL LOSS OF THOUGHT:

- 19 a. Umknęła mi myśl.
'An idea escaped me/on me.'
- b. Kompletnie wyleciało mi z głowy, że ...
It completely 'flew' me-DAT out of the head that...
- c. Zapomniało mi się, że
It forgot to me-DAT itself that... (= 'I forgot that...')

All of the sentences discussed so far represent uses that are easily accountable for in terms of Wierzbicka's semantic formulae provided these formulae were extended and modified. Examples 19 to 20, however, illustrate usages of the dative in Polish that do not correspond, even vaguely, to any of the proposed types, and therefore seem to require a major modification of Wierzbicka's inventory. They include sentences with the optional occurrence of the dative reflexive pronoun *sobie* (ex. 19) and of the dative form of the second person singular pronoun *ci* (ex. 20).

- 19 a. Idę *sobie* stąd.
'I am going myself-DAT away from here.'
- b. A teraz wypiję *sobie* kawkę i zapalę *sobie* papieroska.
'And now I will drink myself-DAT a little coffee and smoke myself-DAT a little cigarette.'
- c. Jestem *sobie* krakowianka.
'I am myself-DAT a little girl from Cracow.'

The reflexive pronoun *sobie* in examples 19a,b and c has emotional overtones. It seems to indicate that the subject is indulging in the activity (or state) that apparently is giving him pleasure and that he considers this activity exclusively his. Wierzbicka does not include this use of *sobie* in her inventory but she mentions the pronoun in her discussion of English structures of the type *have a drink* (1988:341). Her claim, however, that *sobie* used in Polish with reference to "pleasure-seeking, self-centered" activities "excludes the possibility of mentioning the object" (1988:341) is simply not true for numerous sentences similar to 19 can easily be produced in Polish.

- 20 a. Miałem *ci* ja złoty róg.
Had you-DAT I a gold horn.
'Didn't I have a horn of gold.' (Wypianski *Wesele*)
- b. To *ci* był bal.
That you-DAT was a ball.
'That was what you would call a ball.'

The role of the pronoun *ci* in sentences of spoken Polish such as 20a,b seems purely emphatic. The recipient of the action reported in the sentence is the listener the pronoun makes an explicit reference to in order to concentrate his attention on the event.

- 21 a. Popraw mi się.
 Improve me-DAT yourself.
 'I am asking you to be better.'
- b. Coś mi źle dzisiaj wyglądasz.
 Somehow me-DAT bad today you are looking.
 'You are looking bad today, it seems to me.'

The use of the first person pronoun *mi* in sentences such as 21a,b is very similar to Wierzbicka's category of the dative of WARNING which, I think, has a much wider application in Polish than the WARNING formula suggests. The use of the pronominal dative *me* in examples such as 21a,b indicates that the speaker is concerned, and therefore indirectly affected by the state or by what is happening to somebody else. Moreover, example 21b, with the predicate expressed by a verb of state (*wyglądać*=look), suggests that the dative situation in Polish does not have to be necessarily dynamic.

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For Definitions; Modeling Lexical Psychosemantics*

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Introduction:

This paper describes a computer model of lexical psychosemantics that uses a traditional rule-based approach to account for Fregean compositional semantics in a manner similar to that of Katz (1972, 1977). The model focuses on the representation of the meanings of sentences with causative verbs, action verbs, and negation and helps to explain a substantial set of the existing sentence comprehension evidence regarding the decompositional or non-decompositional status of lexical semantic representations (Gergely & Bever, 1986; Gentner, 1981; Fodor, Garrett, Walker, & Parkes, 1980 (FGWP); Fodor, Fodor, & Garrett, 1975 (FFG)). In this regard, it is consistent with a detailed study done by McNamara and Miller (1989) that concluded that there was some evidence in favor of a definitional account of the mental representation of word meaning.

Section I; The Syntax:

The syntax employs certain aspects of Generalized Phrase Structure Grammar (GPSG, Gazdar, Klein, Pullum, and Sag, 1985), including an extensive use of syntactic features, simplified versions of the foot feature principle (FFP) and the control agreement principle (CAP), and the use of the slash feature to keep track of gaps. It is written, as is the rest of the model, in PLNLP--Programming Language for Natural Language Processing--a language developed by George Heidorn (1972). PLNLP is convenient because it has attribute-value record structures, production rule type statements, and a built-in parser. A look at some of the PLNLP code for the syntax shows how certain features of GPSG are used.

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```

(021)    DET  NOUN(COMMON) -->
          NP(%NOUN,HDFTRS=HDFTRS(NOUN),
            BAR(HDFTRS)=2,SUBJTYPE='NPRSE',
            FTFTRS=FTFTRS(FFP<DET,NOUN,0,SEG>)),
/*we use CAP here to rule out NPs like "a books
          CPTEST=CAP<AGR(HDFTRS(NOUN),AGR(DET)>)>
(023)    P(BAR(HDFTRS).EQ.1,^FCT) --> PPS(%P,+FCT,
          NILL(HDFTRS)='NPQ',
          FTFTRS=FTFTRS(FCR<SEG>)),
          HDFTRS=HDFTRS(P))
/*25 is the rule for verbs like PUT*/
(025)    VERB(SUBCAT(HDFTRS).EQ.6) NP(CPTEST.NE.0)
          PP(LOC(HDFTRS)) -->
          VP(%VERB,BAR(HDFTRS)=2,
          SPEC1=NP,+COMPLS,
          <INFNT,
          VFORM(HDFTRS)='FIN'...'BSE'>,
          FTFTRS=<SLASH='NSPEC',
          RE='NSPEC',WH='NSPEC'>,
          FTFTRS(VERB)=<SLASH='NSPEC',
          RE='NSPEC',
          WH='NSPEC'>,
          SPEC2=PP,
          FTFTRS=FTFTRS(FFP<VERB,NP,
          PP,SEG>))

/*31 is for verbs like LOVE without the object NP*/
(031)    VERB(SUBCAT(HDFTRS).EQ.2) -->
          VPS(%VERB,HDFTRS=HDFTRS(VERB),+COMPLS,
          <INFNT,VFORM(HDFTRS)='FIN'...'BSE'>,
          NILL(HDFTRS)='NPQ'...'NPQP',
          FTFTRS(VERB)=<SLASH='NSPEC',
          RE='NSPEC',WH='NSPEC'>,
          FTFTRS=<SLASH='NSPEC',RE='NSPEC',
          WH='NSPEC'>,
          FTFTRS=FTFTRS(FCR<SEG>)),BAR(HDFTRS)=2)

/*32 is for verbs like PUT without the locative PP*/
(032)    VERB(SUBCAT(HDFTRS).EQ.6) NP(CPTEST.NE.0) -->
          VPS(%VERB,HDFTRS=HDFTRS(VERB),
          NILL(HDFTRS)='LOCQ',
          <INFNT,VFORM(HDFTRS)='FIN'...'BSE'>,
          FTFTRS(VERB)=<SLASH='NSPEC',
          RE='NSPEC',WH='NSPEC'>,
          FTFTRS=<SLASH='NSPEC',
          RE='NSPEC',WH='NSPEC'>,
          SPEC1=NP,+COMPLS,
          FTFTRS=FTFTRS(FCR<SEG>)),
          BAR(HDFTRS)=2)

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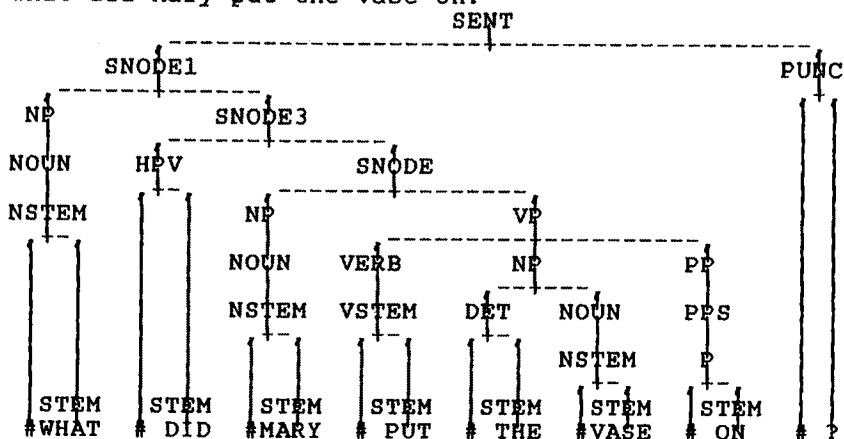
For example, rule (21) rewrites a determiner/noun

combination as an NP and calls two procedures, implementing simple versions of the FFP and CAP respectively. Here CAP helps to rule out such combinations as "a books." The GPSG feature co-occurrence restriction "NULL--> SLASH" is made use of in rule (23) to mark the absence of the NP in prepositional phrases like the one in "What did she put the vase on?" The immediate dominance rules of GPSG, with their subcategorization features on verbs (here denoted by SUBCAT), are used in a fairly straightforward manner, as illustrated by rule (25). Rules (31) and (32) illustrate the treatment of the slash feature on VPs, with a missing NP in the first case, and a missing locative PP in the second. The node label VPS (like PPS in rule 21) is used to simplify the implementation of the slash feature. The FFP procedure in the model passes such slash features, with their values appropriately marked, up the tree until they are cashed out and the CAP used to ensure agreement.

The output from the syntax portion of the model for "What did Mary put the vase on?" gives an example of the parse trees created by PLNLP using these types of rules. This illustrates the handling of a PP with a slash feature. One problem with the version of PLNLP that was used is that it can generate enormous parse trees that can fill several pages.

SAMPLE SYNTAX OUTPUT

DECODE is ready for your sentence:
What did Mary put the vase on?



Section II; The Semantics:

The next diagram illustrates the workings of the semantics portion of the model. This is an attempt to model some aspects of Katz's semantic theory, to which we will refer as ST (1972, 1977).

INPUT: Simple Sentence or

"Is 'sentence #1' entailed by 'sentence #2?'"
synonymous with

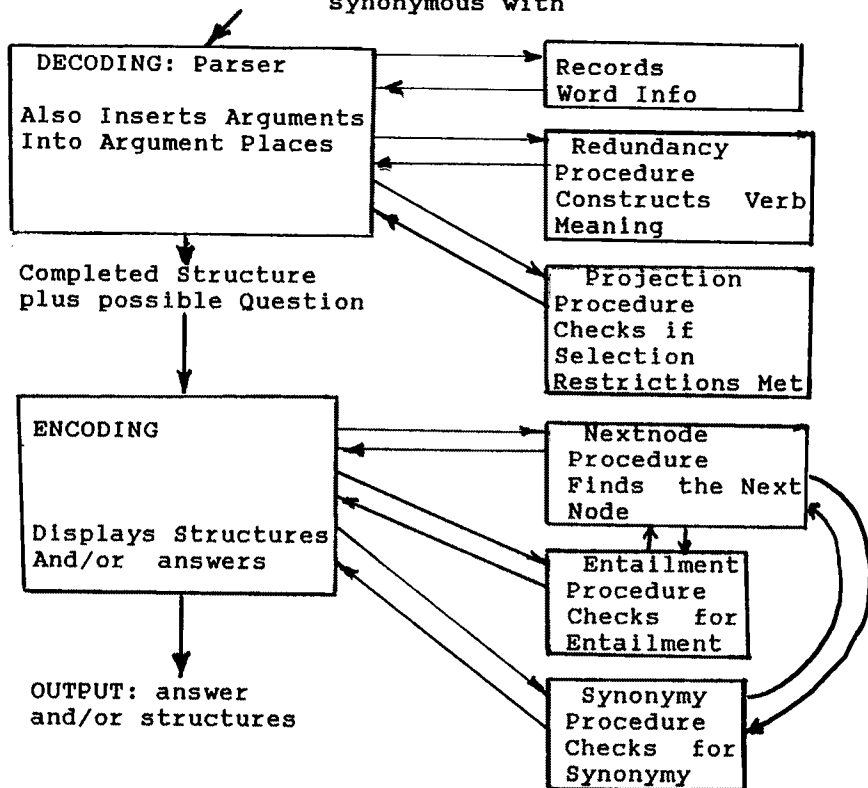


FIGURE ONE

Some of the record structures supply the parser with information about the meanings of words which it passes to a redundancy procedure. This procedure constructs the complete representation of the meaning

of the main verb in a simple transitive or intransitive sentence using the information provided as well as other record structures. The redundancy procedure passes this information back to the parser which then, with this structure together with the representations of the grammatical subject and object of the sentence, calls a projection procedure. This procedure checks to see whether the selection restrictions of the verb for the argument places to be filled by the subject and object are met, and passes this information back to the parser. The parser then inserts arguments or error flags into the argument places in the representation of the verb's meaning.

The parser then passes this structure over to the encoding section of the program, which, if the input was just a sentence, will simply display the resulting semantic representation or an error message, or, if the input was a question about the entailment or synonymy relation between sentences, an answer together with the semantic representations.

Outputs of the model illustrate the semantic representations that it builds for the sentences it handles. These representations are intended to provide rough but plausible accounts of the senses of these sentences. "The man cleaned the table" is represented as a physical act of causation in which the man is the agent, and the table undergoes a change of state, from having extraneous matter to not having extraneous matter on it. In Katz's semantic theory representations like these are intended to account for the semantic properties and relations of sentences. For example, that this sentence entails that the table became clean is captured in the representation by the structure below the RESULT node. The sentence "The woman opened the window" is given a similar representation, with the change of state of the window represented as going from a condition in which it does not provide access to one in which it does provide access. The model's response to questions about semantic relationships like entailment is illustrated by "Is 'the vase broke' entailed by 'the man broke the vase'?" The model determines that, in fact, the representation of the first sentence is contained in the representation of the second and responds affirmatively, displaying its versions of the representations.

SAMPLE SEMANTICS OUTPUT

Grammar:ACTION2 Sentence symbol:SENT
 Tracing: None Encoding symbol:ENCODING
 DECODE is ready for your sentence:
 the man cleaned the table.
 THE SEMANTIC MARKER IS:

 ACT MAN
 PHYSICAL
 CAUSATION
 CAUSE RESULT
 EVENT TABLE
 CHANGEOFSTATE
 BEFORE AFTER
 ----- X MATTER NO X MATTER -----

DECODE is ready for your sentence:
 the woman opened the window.
 THE SEMANTIC MARKER IS:

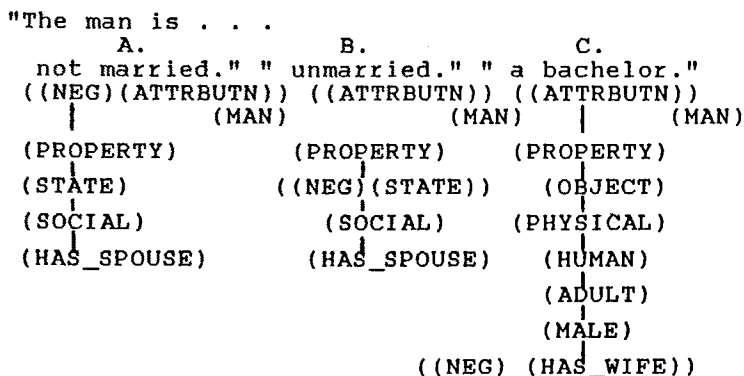
 ACT WOMAN
 PHYSICAL
 CAUSATION
 CAUSE RESULT
 EVENT WINDOW
 CHANGEOFSTATE
 BEFORE AFTER
 ----- NO ACT THRU ACT THRU -----

DECODE is ready for your sentence:
 is ' the vase broke ' entailed by
 ' the man broke the vase '?
 YES! THE MARKERS ARE:

 EVENT VASE ACT MAN
 CHANGEOFSTATE PHYSICAL
 BEFORE AFTER CAUSATION
 WHOLE NOTWHOLE CAUSE RESULT
 EVENT VASE
 CHANGEOFSTATE
 BEFORE AFTER
 WHOLE NOTWHOLE

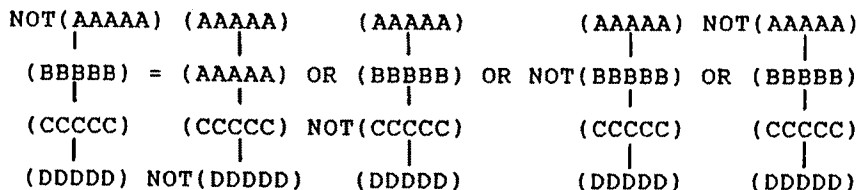
Section III; Modeling the Psychological Evidence:

Although this is not shown here, the model is developed to treat sentences with negative elements like "The man is not married," "the man is unmarried," and "the man is a bachelor." For such sentences it generates a series of disjuncts according to the scope of the negative element.



Notice that the positions of the negative elements in each of these representations is well motivated. First, in A, the scope of the negative must include the node ATTRIBUTION, which is our representation of the meaning of the verb "to be" in the sentence, since "is" is within the scope of "not" in "the man is not married." In "the man is unmarried" the scope of the negative element includes all of the meaning of "married," to which it is morphologically attached, the meaning of "is" no longer being within its scope. In "the man is a bachelor" the negative element can be meaningfully attached only to the last node, HAS_WIFE.

Now, in a hierarchical structure as in a semantic reading, a negation of a node in the structure results in a disjunction made by attaching the negative element to alternate nodes below the initial negative element. The schema illustrates this format:

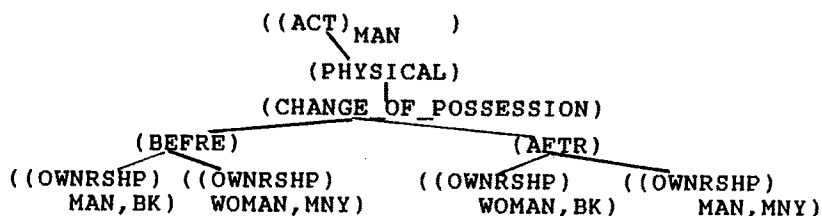


The taller the structure and the higher up in it the negative element occurs, the more disjuncts or the more ORs you get. The complexity relationships between explicit, morphological and definitional negatives that Fodor, Fodor, and Garrett (1975) found--explicit being the most difficult and PDNs (pure definitional negs) the least, with morphologicals intermediate--are exactly mirrored by considering the ST representations for sentences A, B, and C, taking into account the number of disjuncts generated by the negative elements

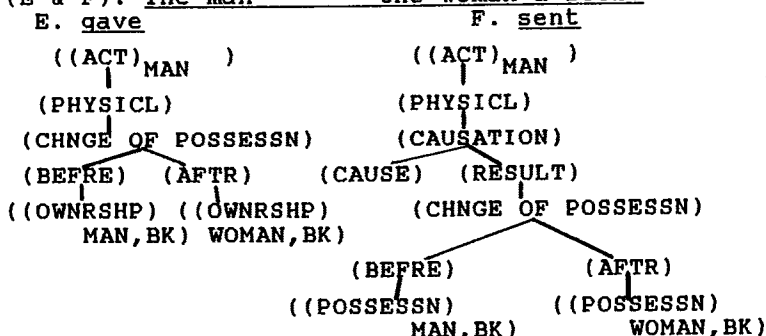
in these structures. So a sentence like C, with the PDN "bachelor" gets no disjunction since the negative element is at the bottom of the semantic reading. Sentence B, with the morphological negative "unmarried" gets three disjuncts; and sentence A, with the explicit negative "not married" gets five disjuncts.

Another class of data that the model helps explain concerns judgements of the degree of relatedness between subject and object NPs in sentences with different types of verbs. Fodor, Garrett, Walker and Parkes (1980)--FGWP--considered evidence of this type to argue against definitional approaches to the representation of word meaning. They reasoned that the bi-clausal underlying meanings supposedly proposed by definitional theories for causative verbs--"persuade" being something like "cause to change intention or belief"--would require the subject and object NPs of such verbs to be judged less closely related, contrary to their findings. But a plausible explanation consistent with a definitional view like Katz's is that the larger the number of insertions of these NPs as arguments in the semantic representation of these sentences, the more related they are judged to be. Representations D, E, and F, have to do with evidence from a study by Gentner (1981), in which it was found that the NPs in "the man sold the woman a book" are judged to be more related than the corresponding NPs in either "the man gave the woman a book" or "the man sent the woman a book." There are a total of five insertions of MAN and WOMAN in D, but only three in E and three in F. In addition, the same explanation handles the FGWP evidence; there are many more argument insertions for MAN and WOMAN in "The woman persuaded the man to leave" than there are in "The woman expected the man to leave," consistent with the FGWP evidence. Also this explanation generalizes over all verbs having the meaning of causing a change in intention or belief, the Gergely and Bever (1986) account, since it is on this branch of the tree that there is a proliferation of argument insertions.

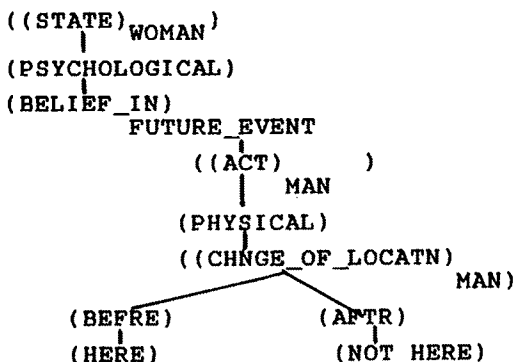
D. The man sold the woman a book.



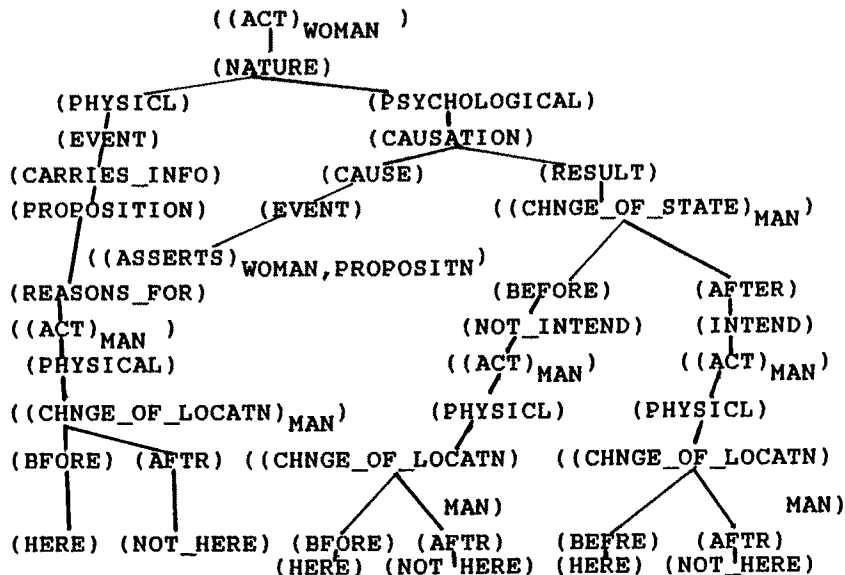
(E & F). The man the woman a book.



G. The woman expected the man to leave.



J. The woman persuaded the man to leave.



Conclusion

This model is an effort to integrate a fair amount of linguistic knowledge in a single system in order to account for a substantial class of evidence. It is a small beginning and so does not handle many linguistically interesting features of the items treated, such as polysemy. However, it does show that the explicitness imposed by a computational model can lead to explanations of the psycholinguistic evidence that might not have been so obvious otherwise.

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PARADIGM RESTRUCTURING IN SLOVENE DIALECTS:
A CASE OF CASE SEMANTICS IN SLAVIC

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This paper* investigates variation among different nominal case endings in the dialects of Slovene.¹ The data will be examined in light of Roman Jakobson's famous proposals concerning the semantics of case in Slavic (Jakobson 1936 & 1958); the assumption is that, if cases have inherent meaning of their own which is expressed in the case endings, then variation among these endings must reflect to some degree the underlying semantic relations involved. To put it another way, if we agree with Jakobson that "form equals function", then changes in the distribution of forms in a dynamic linguistic system cannot be trivial.

SLOVENE DIALECTS

For a "small" language, Slovene (hereafter Sln) displays a truly stunning amount of dialectal variation (Lencek 1982: pp. 133ff., esp. map on p. 141). Slovenists have traditionally discerned seven major dialect groups within Sln, which in turn can be criss-crossed by major isogloss bundles (Lencek 1982, pp. 135ff; commentary in Logar 1975). In the present work we shall be dealing with dialects from the following groups:

Carinthian (Car)--spoken in the extreme north of the Sln speech area.
Northeast Styrian (NEStyr)--spoken in the far NE of the Slovenian republic and in SW Hungary.
Upper Carniolan (UCarn)--north-central Slovenia.
Styrian (Styr)--east-central Slovenia, between NEStyr to the east and Carn to the west.

THE NOUN IN SLOVENE

Like most Slavic languages, Sln distinguishes six cases, the use of which generally corresponds to the use of the cases in Russian and Serbo-Croatian: nominative, genitive, dative, accusative, locative, and instrumental (N, G, D, A, L, I).² Standard Sln and various dialects have retained the dual, so there are

three numbers to account for: singular (sg), plural (pl), and dual (du). We shall consider only the most common and productive paradigms: Class I masculines and neuters (M and N); Class II feminines (F-a), and Class III feminines (F-i; see Lencek 1982, pp. 194-212, for the details of this classification). Sample paradigms follow in Table 1:

Class I masculine: korak "step"

	sg	du	pl	
N korak		korak-a	korak-i	
A	"*	"	-e	
G	-a	=pl	-ov	*In nouns denoting
L	-u	=pl	-ih	animate beings,
D	-u	-oma	-om	Asg = Gsg.
I	-om	-oma	-i	

Class I neuter: mesto "city"

NA mest-o	mest-i	mest-a
G	-a	=pl
		-Ø

All other forms = Class I masculine.

Class II feminine: miza "table"

N miz-a	miz-i	miz-e
A	-o	"
G	-e	=pl
		-Ø
L	-i	=pl
		-ah
D	-i	-ama
		-am
I	-o	-ama
		-ami

Class III feminine: nit "thread"

N nit	nit-i	nit-i
A	"	"
G	-i	=pl
		-i
L	-i	=pl
		-ih
D	-i	-ima
		-im
I	-jo	-ima
		-mi

TABLE 1: The Most Common Paradigms in Standard Slovene.

On the whole, these paradigms are rather archaic, especially in the plural. No other South Slavic language (with the exception of the closely-related Kajkavian dialects of Serbo-Croatian) has retained such old forms or maintained so many distinctions lost in other Slavic dialects (e.g., gender distinctions in the DLI pl). For this reason, intra-paradigmatic syncretisms are relatively few (especially those involving DLI), and those that do exist were either inherited from Common Slavic, or else represent fairly early

changes. Because of the conservative nature of the declensional system of standard Sln, we may take these paradigms as the starting point from which the dialectal systems have developed.

JAKOBSON'S SEMANTIC FEATURES

Roman Jakobson (1958, p. 158) argues that each of the six basic Slavic cases has an invariant meaning of its own, which he characterizes as a set of semantic features. Using the notions of markedness and binary oppositions, he divides the cases into three groups, with N unmarked in relation to the others: A and D are the DIRECTIONAL cases, which "signal the goal of an event"; G and L are the QUANTIFIERS, which "focus upon the extent to which the entity takes part in the message"; and I is characterized as the PERIPHERAL case, which "assign(s) the entity an accessory place in the message". Peripherality also distinguishes L from G, and D from A: these, then, are the PERIPHERAL cases, and NAG are the CENTRAL cases. To further refine Jakobson's notion of peripherality, let us state that peripheral cases express largely adverbial relationships which stand apart from the predicative core of the sentence and may be deleted without causing ellipsis (Miller 1990, pp. 5-6). Although J's proposals have generated a considerable amount of controversy (see, inter alia, Ebeling 1956, Chvany 1986, and Neidle 1988 for critical discussions of J's work), they nonetheless still³ provide a useful starting point for further analysis; and data from Sln offer support for some of them.

PATTERNS OF VARIATION IN SLOVENE DIALECTS

For the Sln speech area as a whole, the central cases have been relatively untouched by dialectal variation--what innovations there have been tend to be either localized or restricted to small classes of nouns.⁴ They seldom disturb the inherited relationships between cases or paradigms. Conversely, J's putative sub-class of peripheral cases is subject to tremendous variation in Sln dialects. This variation involves the loss of gender distinctions, and/or syncretism (always within the sub-class: the changes actually eliminate inherited syncretisms between central and peripheral cases). The result is a wholesale reduction in the number of distinct peripheral-case designences.

This language-wide tendency is realized in different ways in different dialect groups, as we shall see presently. Interestingly, the trigger mechanisms for paradigmatic restructuring--regular sound changes destroying the inherited relationships, simple morphological substitution, etc.--also differ from area to area. The impetus for individual changes will be discussed below, where relevant. What is significant, in any case, is that no matter what provokes change in a given paradigm, its subsequent evolution will follow the general patterns given above.

Let us now review the situation in the various dialect groups studied for this report (please refer to sample paradigms given above):

CARINTHIAN

Gender distinctions are maintained in the sg, but lost in du and pl. L and I pl endings in Car come from the old pronominal declension (-eh, -emi respectively); D pl is the Class I ending (-om); doublets persist in the F-i D pl (-im : -om). All nouns take the Class I DI du form -oma. The cases do not regularly syncretize in the pl, although at least one investigator has encountered rare instances of D = I, and I = L in some dialects (Stermole 1987, p. 213). I sg often utilizes the DL ending -u in M--thus, I = D = L, at least facultatively.

NORTHEAST STYRIAN

NEStyr is typical for central and eastern Sln as a whole in that gender distinctions have been lost in the DL sg: all nouns take the ending /-i/.⁵ Gender distinctions are lost in the du and pl as well, but, curiously, developments in these two numbers seem to be mutually exclusive: weakening of gender distinctions in the du has progressed farthest in a band of dialects spoken between the Drava and Mura Rivers in northeastern Slovenia. The innovations in the pl have taken place in dialects of Prekmurje, across the Mura River to the NE of the above-mentioned dialects. However, despite such proximity, no one dialect displays both innovations at once, at least not in their final stages (Miller 1990, pp. 11-14). In Prekmurje, all nouns tend to take original F-a endings in L and I pl. In D pl, a distinction is maintained between M (-om) and all other nouns (original Class II -am), with doublets in M in some dialects. In the M I pl, doublets in -i and -ami are encountered more rarely, while

no doublets at all were found for L pl. This suggests that the restructuring of this particular paradigm proceeded in discrete stages. Finally, as in Car, one sees traces of the I pl being used with original L pl endings.

While the three peripheral cases remain distinct in the plural, they all take the same ending in the du. With the loss of gender distinctions discussed above, this means that all DLI du forms in some NESTyr dialects take the same ending, which is the old Class I DI du form -oma.

STYRIAN & UPPER CARNIOLAN

These two areas share many innovations in the development of the declensional system. As in NESTyr, gender distinctions have disappeared in the DL sg, and all nouns tend to take the ending /-i/. In some Styr dialects, the old oppositions seem to be partially maintained, but the presence of numerous doublets in the data indicate that they are in the process of being lost (Miller 1990, p. 10).

In the plural (the du has died out in both areas) one sees a similar state of flux. First of all, there is regular syncretism between D and I, a change seemingly triggered by the regular loss of word-final -i (Miller 1990, pp. 14-15). Gender distinctions are lost only partially: in some dialects all nouns take the same L pl ending (-ih or -h), with different paradigms using different D and I forms; or, again, doublets abound in all the relevant categories, suggesting a change in progress (for examples, see Miller 1990, p. 12). In a smattering of dialects, the loss of gender distinctions in DLI pl is complete, and F-a endings are used. Finally, when the Class I I pl is -am or -m, it is completely homonymous with the I sg (NB--in nouns and modifiers)--i.e., number distinctions are lost.

Certain language-wide tendencies are revealed in these data. First, and most importantly for proponents of J's system, peripheral and central cases do tend to behave as distinct classes in dialectal Slv. In terms of regional variation, NAG are conservative, while LDI are quite dynamic. Secondly, while the changes the peripheral cases undergo may have different root causes in different areas, all tend to accomplish the same thing: they reduce the number of possible peripheral-case desinences by eliminating gender distinctions or causing syncretism. (We saw that

in at least one instance, even the distinction between sg and pl can be lost.)

But other generalizations we can make complicate the scenario. For one thing, syncretic equations never match across the three numbers. $D = L$ sg is a language-wide phenomenon, but $D = I$ is the preferred (inherited or innovated) equation in du and pl ($L = I$ pl is also a possibility). $D = L = I$ can occur in sg or du, but never in both numbers in the same dialect, and never in the pl. (In fact, when it does occur, it precludes any syncretism at all in pl.) Furthermore, "syncretism" in this context really means that I starts to be used with L forms, or L or I start to be used with D forms. If D forms change at all, it is only to eliminate gender distinctions--D never takes the forms of another case. Finally, D pl will not lose gender distinctions before L and I do.

WHAT DOES IT ALL MEAN?

I suggested in my 1990 paper that gender distinctions might be irrelevant to peripheral cases, as defined in this report (Miller 1990, p. 18): perhaps the information supplied by gender comes to be seen as more relevant to the central cases, involved as they are in the predicative core of the sentence, than to the peripheral cases, which are used mostly in adverbial constructions that add optional information to the utterance. Stankiewicz 1962 (p. 3, note 9) makes roughly the same observation in different terms: "The semantically least marked cases, the nominative and accusative . . . carry gender distinctions in all Slavic languages"; later, he notes that D and L are marked for gender less often than the other cases. In any event, loss of gender distinctions in the pl--especially in DLI--occurs throughout Slavic, and seems to be connected to the asymmetry between the numbers so often noted in these languages (Unbegaun 1935, pp. 38-40; Stankiewicz 1962, pp. 2-6).

As for syncretism among the peripheral cases, it is tempting to view the equations we have discussed as merely a simplification of the procedure whereby case forms are constructed in a native speaker's internal grammar. Fewer features need to be specified in this process: when two peripheral cases fall together, only two features need to be cited: [periphera], and either [+directional] or [+quantifying]. When all three syncretize, of course, [peripheral] suffices (Miller 1990, p. 16).

However, this explanation begs several questions. First, why does peripheral-case syncretism in Sln never match across the three numbers? Stankiewicz writes off different syncretic equations in sg and pl in some Slavic languages (he does not mention Sln dialects) as merely "another aspect of the sing./pl. asymmetry" (Stankiewicz 1962, p. 4, note 12). That is all well and good, but what might the different syncretisms signify? Perhaps there is a clue in the fact that oppositions between sg and pl in other Slavic (and non-Slavic) languages inversely follow the markedness of these categories: for instance, the unmarked sg distinguishes more cases and genders than the marked pl (Stankiewicz 1962, p. 2), while other marked categories tend not to be delimited in the pl (Jakobson 1959, p. 189). This would suggest that the syncretic equations allowed in the sg must be marked in some way--perhaps they are less natural than those permitted in the pl, and exact more of a cost to process semantically. This is a promising avenue for future research.

I would like to propose that the behavior of the individual cases in all of this might be the morphological reflection of something we could call the Hierarchy of Peripherality. That is, it might be more useful to visualize the central-peripheral opposition as a continuum, not as a line separating two discrete groups. At one extreme stand N and A, the most central of the cases, used as they are with the subject and direct object in the predicative core of the sentence: these case forms hardly ever change in Sln dialects, and when they do, the changes are relatively trivial. At the other extreme are L and I, used exclusively in adverbial constructions (and, let us add, never outside of prepositional phrases): we have seen that these cases regularly lose gender distinctions and syncretize. In the middle are G and D. G is used in more purely adverbial functions than N or A, but can also be found in the subject or direct object in various contexts (See Neidle 1988, Chs. 2-4, for a discussion of the Russian G). In Sln dialects, G forms change much more often than those of the other central cases (G pl seems to be especially volatile), but the changes still rarely affect the G's place within the paradigm. For its part, D is much less peripheral than either L or I: its use in the indirect object and with the logical subject in various impersonal constructions put it close to the predicative core, and, unlike L or D, it is hardly ever used with a preposition. At the same time, eliminating a

D construction will rarely, if ever, result in ellipsis.⁶ Again, the D's position in the semantic hierarchy is reflected morphologically in Sln dialects: unlike with G, changes that affect D will frequently eliminate gender distinctions (but, significantly, only after these have been lost in L and I); unlike with the other peripheral cases, such changes never result in syncretism. This situation is captured in Table 2:

	trivial changes*	loss of gn. syncr.	loss of no.
NA	X		
G	X**		
D	X	X	
L	X	X	X#
I	X	X	X# X

* "trivial changes" = localized variation; variation limited to a small no. of nouns; archaic forms occasionally preserved, etc.; gen. & no. maintained.

**G much more subject to variation than N or A (esp. Gpl); old paradigmatic relationships, for the most part, maintained.

Syncretism poss. with preceding two cases: L = G (pl adjectives & some pronouns); L = D; I = D; I = L (see above).

TABLE 2: Hierarchy of Formal Variability Among Nominal Cases in Slovene Dialects.

Finally, what is the semantic cost of this syncretism? Of the syncretic equations we have mentioned, only L = I presupposes the combination of cases having similar functions (i.e., use in adverbial, bound constructions; many of these, furthermore, denote location). D, as we noted above, differs functionally from L and I (it is more "central"), but is used in radically different contexts (i.e., without prepositions)--misunderstandings are unlikely if L and/or I syncretize with D. On the one hand, therefore, we have syncretism of cases with very similar functions, and on the other, syncretism of cases with different functions, but used in different contexts. Both situations support the principle articulated by David Kilby: languages will streamline their case systems by combining as many functions as possible into one case without causing ambiguity (Kilby 1986, pp. 329-30). Of course, we still need to ask: what in the semantics of these cases allows the functional load of certain morphemes to thus increase (is the feature [+peripheral] sufficient?)--but that is a thorny question for another work!

NOTES

- * The author would like to express his warmest thanks to the staff of the Slovene Language Institute in Ljubljana, who gave him access to their ample store of dialect data in the summer of 1987; and especially to Dr. Tine Logar, who generously shared material from his personal files in the summer of 1990.
1. Slovene is a South Slavic language spoken on the northwest fringe of the Balkan peninsula. Most Slovene speakers live in the Yugoslav Republic of Slovenia, but the Slovene language area spills over in neighboring regions of Italy, Austria, and Hungary. The total number of Slovene speakers on this extended territory is about 1.8 million; see Lencek 1982, pp. 14-18.
 2. Readers not familiar with these traditional terms are referred to any standard text on any inflected Slavic (or non-Slavic!) language. The order in which I give the cases here is the traditional Slovene one, adapted from classical grammars. Later I use the modified order, based on case syncretisms in standard Russian, that arose after J's work: NAGLDI. See Chvany 1986, pp. 110-13.
 3. Although J developed his system on the basis of Russian, he himself considered it valid for all inflected Slavic languages, and, in fact, other scholars have applied it to various other languages with some success: see, for instance, Ivić 1961 on Serbo-Croatian, Lencek 1982, p. 187, on Sln.
 4. E. g., in some NESTyr dialects, one encounters a N pl M suffix -o:vwge/-o:vwde (Ramovš 1952, p. 44); in UCarn and elsewhere, the N NA sg ending -o/-e can be lost (Lencek 1982, p. 147); G pl is occasionally found with the adj. ending -ih (Ramovš 1952, pp. 45-46); G pl forms also seem to be particularly vulnerable to phonological changes.
 5. Surface forms vary depending on the fate of word-final /-i/ in the given dialect. See Miller 1990, pp. 9-10.
 6. Other investigators have grouped D more with what J called the central cases: Mel'čuk 1986, pp. 41, 71; Topolińska 1986, p. 294. The problematic status of G and D is noted in Brecht & Levine 1986, p. 27.

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NEStyr: Gornji Senik, Večeslavci, Nedelica, Gomilica, Gajševci, Brengova, Videm, Bučkovci, Cvetkovci,

Styr: Proseniško, Gorica, Bistrica, Pišce.

UCarn: Smlednik-Valburga, Srednje Jarše.

Data was augmented by texts from these or neighboring villages in Logar 1975.

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IV

HISTORICAL AND COMPARATIVE STUDIES

MESOTOMY AND PHONOLOGICAL THEORY

Toby D. Griffen*

The Mesotomic Syllable

As demonstrated in a forthcoming article (Griffen in press) the accent pattern of Old Welsh lay at the root of a poetic device in the vaticinary Armes Prydein (The Prophecy of Britain -- see Williams 1972). The phonologically pertinent accent in Old Welsh was a culminative high pitch on the ultima, with stress variations slight and of no pertinence (compare Watkins 1972). Pretonic syllables were thus quantitatively identical. If two consecutive pretonic syllables shared the same quality, then they would have been so identical that they could have been considered one single long syllable.

For example, line 2 of the Armes Prydein is maraned a meued a hed genhyn 'we shall have wealth and property and peace' (Williams 1972:2 & 3 -- translation by Rachel Bromwich in text). As is, the line violates the Cyhydedd Naw Ban meter, which requires nine syllables divided into two half-lines of five and four syllables, respectively. In the word maraned [maraned] 'wealth, treasure', however, the two pretonic syllables are identical and are scanned as a single syllable. The long syllable aa is thus "cut through the middle" by the r -- suggesting the term mesotomic. This scansion brings the line into the accepted meter. (The syllables of meued [mebed] 'wealth, possessions' differ in quantity and cannot be scanned as identical.)

Of the 199 lines in the poem, only a minority of 92 lines (or 46%) adheres to the prescribed meter without mesotomy (Williams 1972:lii). With this device, however, 24 more lines are fully justified (an increase in 26% of acceptable lines), to bring the total to a majority of 116 lines (or 58%). In addition, 3 half-lines are justified by the device and 2 lines are brought closer to the meter. Thus, the mesotomic syllable assists the proper scansion in 29 lines, bringing the total so far justified or assisted to 121 lines (or 61%). Given the age and the uncertain number of transmissions through the various dialects between the poem's composition around A.D. 930 and the production of its extant manuscript form about 1275 (see Williams 1972:xii-xx), this increase is quite impressive. Moreover, every case of an apparent mesotomic syllable that would violate the meter is demonstrably due to spelling variants, foreign phonological systems, or Middle Welsh orthography.

Describing the Mesotomic Syllable

For Old Welsh versification, the mesotomic syllable is an insightful and straightforward device. To the Old Welsh poet of the Armes Prydein,

the mesotomic syllable was one single long syllable, cut through the middle by a consonant. For phonological theory, on the other hand, it is problematic: How are we to describe this phenomenon?

The traditional practice in phonology is to describe the word through a sequence of phonemic or phonematic units. Thus, maraned [maraned] would be rendered /maraned/. To show that this is two syllables and not three, we can use "\$" as a syllable boundary marker to yield /maran\$ned/. At first glance, this may appear to be inelegant, with the /a/ on either side of the /r/; but if we adopt the widespread convention of transcribing long syllables as double consonants (such as /aa/), then the solution may be acceptable, so long as all pertinent boundaries are made explicit.

The problem is most evident in the tree-structures of the more modern approaches, such as autosegmental phonology (from Goldsmith 1976, 1985) and metrical phonology (see Giegerich 1985). Indeed, even the recent developments in prosodic analysis are dependent upon the phonematic CV sequences and the tree-structures they generate (compare Fudge 1987). The fundamental difficulty lies in the representation of mesotomic syllables in a tree-structure that allegedly represents some abstraction into phonology.

When we attempt to write a tree-structure for a long /aa/ syllable cut through the middle by /r/, we end up with crossing branches, as in figure 1. This inelegance is necessitated by the fact that the /aa/ is a single unit. If the two vowels were independent, then the sequence could be accommodated. (Of course, we could reduce the syllabic vowels to morae and proceed from there, but that would require a revision of all phonotactic rules to redefine the position of consonants relative to morae, including an explicit reason why a consonant could not cut in between morae of the same syllable elsewhere. Moreover, since the poetic meter is based upon the syllable and not the mora, this solution would create far more problems than it would resolve.)

We cannot reduce the mesotomic syllable to an acceptable tree-structure because the /aa/ is not really a sequence, but a continuous syllabic vowel; and the /r/ does not really break up the vowel, but merely occurs during it. Even in the phonemic transcription /maran\$ned/, the occurrences of /a/ are separated by the /r/. Indeed, this transcription works only because we implicitly understand that the /aa/ is the single vowel of the initial syllable. If we must make all information explicit in a formal description, then this transcription is utterly inadequate.

In linear and nonlinear approaches, the problems in the description of the mesotomic syllable are symptomatic of a greater problem in the relationship between phonetics and phonology. Autosegmental phonology, for instance, is abstracted from dynamic phonetics (see Goldsmith 1976), in which there are no cross-sectional sequential segments (see below). But the autosegmentalists follow the structural tenet that the phoneme exists on a higher phonological level, and they impose the unit on the description. Harkening back to Hockett 1955, they deem that the egg must be unscrambled to be deciphered -- assuming, of course, that there is an egg in the first place.

In the history of phonological theory, this contradiction is salient: The categories and relationships of the phonology should be abstracted from the phonetic evidence (compare Jakobson and Halle 1971:19), but

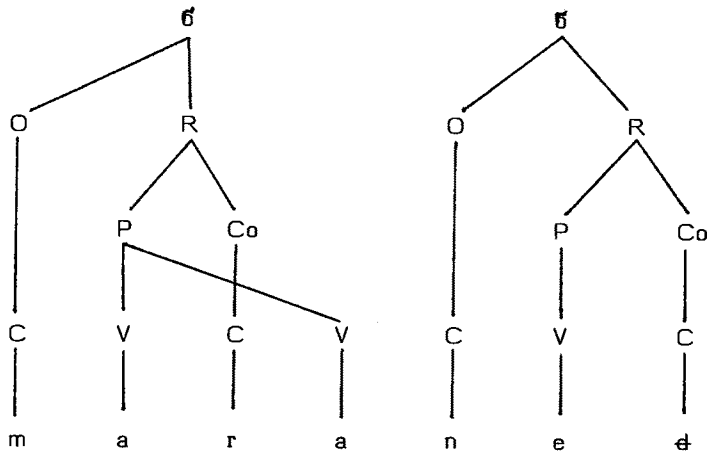


Figure 1: CV Tree-Structure Analysis

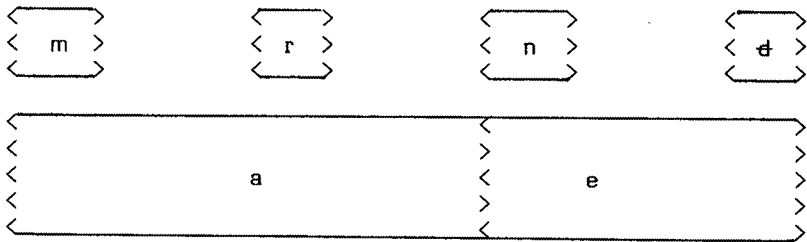


Figure 2: Dynamic Analysis

the phoneme (or phonematic unit, or segment, or CV sound/entity, etc.) must exist -- if not in the phonetic evidence, then in the phonology.

Dynamic Solution

As dynamic phoneticians from Curtis (1954) to the present have long maintained, there is no basis in the phonetic evidence for the speech segment. Rather, speech is produced in a complex pattern of dynamic coarticulatory constraint -- certain features and feature types constraining other features and feature types with which they are simultaneously articulated.

Thus far, the only phonological model to abstract its structure from the evidence of dynamic phonetics is dynamic phonology (see Grif-fen 1985). This model abstracts the basic relationship between the consonant and the vowel found in the speech production model of Mermelstein (1973:1081-82), in which consonants are constraints on the vowels with which they are coarticulated.

Dynamic phonology organizes its features within the syllabic frame (as in figure 2 -- see below). In this schema, the laryngeal pattern (the activity of the vocal cords and its fundamental frequency) is constrained by the syllabic vowel (the oral cavity configuration and its formant patterns), which is simultaneously constrained by the consonantal obstructions. Of course the features within the phonological syllabic frame are restricted to those of demonstrable phonological pertinence (applying the principles of Trubetzkoy 1969 to the dynamic coarticulation).

Within this approach, the solution to the problem of mesotomic syllables is simple and straightforward. As the /aa/ is realized as a single long vocalic utterance and the /r/ is imposed upon this utterance, then the most insightful description for the phenomenon is that found in the syllabic frames of figure 2.

In reviewing the dynamic solution, autosegmentalists could object that the tree-structure does describe the phenomenon from the bottom up: The vowels in the CV sequence are interpreted as the same peak on the higher level. This suggestion, however, contradicts the autosegmental relationship between phonetics and phonology, in which it is the phonetic evidence that maintains the continuous vowel. Indeed, this rationalization would have the continuous phoneme relating a discontinuous continuum.

Dynamic phonology succeeds in the description of mesotomy where the others fail because it abstracts the coarticulatory relationships among the features as well as the features themselves from the phonetic evidence. There is no preconceived assumption that letters (alias phonemes, etc.) are somehow present in the speaker's mind.

Conclusion

Among those who consider it paramount that the linguist determine just what is in the mind of the speaker, some are the most adamant in insisting upon the assumption of an underlying segmental realization in this mind -- that the segment have psychological reality. The mesotomic syllable in Old Welsh is perhaps the strongest evidence yet that the

phoneme is not psychologically real -- or real in any other sense outside of orthography.

The poet of the Armes Prydein was certainly a lettered man, quite likely a cleric (compare Williams 1972:xxiv-xxvi). To him, the mesotomic syllable was both a phonetic phenomenon and a phonological. While maraned may have appeared to be trisyllabic, it had a long continuous vowel [aa], and the word was therefore scanned as dissyllabic. In the mind of the poet, then, the syllabic vowel did indeed continue unabated in spite of its being "cut through the middle" by the consonant. The poet then, despite his literacy, abstracted not segments, but the dynamic coarticulatory constraint of speech into the phonology of his versification.

So here is evidence that the discrete sequential segment (by whatever name it goes in whatever school) is not within the minds of at least the speakers of this particular (literate!) dialect. We must therefore conclude that it is not necessarily in the anyone's mind. Let us now await the evidence from those who would claim its psychological reality; but let us accept no evidence of authority nor of tradition, but only evidence of observation.

NOTE

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A SUPPLEMENT TO MARTIN'S LEXICAL EVIDENCE

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Samuel E. Martin in his "Lexical Evidence Relating Korean to Japanese" mentions the possibility of Japanese tarapi (washtub) being cognate to Middle Korean taya (id.). He has, however, eliminated references to "washtub" in his list of correspondences, probably because he applied phoneme-correspondence¹³ where he should have applied "11a".¹

In order to refute traditional as well as Ohtsuki's claim that J tarapi is a contraction of ta (hand) - arapi (washing)² I proved J tara-pi cognate to MK taya by showing 9 cases of J /r/ corresponding to K /y/ ³, before I had had a chance to read Martin's classic paper. And in this paper, I will try to add a few more Japanese and Korean phoneme-correspondences to the great monument Martin has established in the comparison between Korean and Japanese.

#1. Japanese /k-/ corresponding to Korean /p-/

1) J kusa (grass) ~ MK phür (id.) As for the Japanese /-s-/ and Korean /-r/ correspondence, refer to Martin's [14c].

2) J kago (basket) ~ MK paku-ni (id.) cf. J pako (box)

3) J keta (beam) ~ K ppaetori (beam end) < MK torh (beam)

4) J kuti (mouth, faucet) ~ MK puri (bill, beak)

5) OJ kura-tani (vale) ~ MK pirəy (cliff) cf. Japanese Satuma dialect pira (id.) and MK kor (vale)

6) J kudari (descent) ~ MK pithar (slope) cf. J tare (to dangle)

7) J katamuki (slant) ~ K pittur - (slanting)

8) J kuttuku (to stick to) ~ K puthi - (id.)

9) J kuru-busi (ankle) ~ MK par (foot) cf. OJ kuwe (to

14) J osimahi (end) ~MK Kızım (id.)

#4 Japanese /t-/ corresponding to Korean /s-/

Martin proves Japanese /t/ corresponds to Korean /s/ in intervocalic and final position. This correspondence also exists in initial position as well:

1) J toku (to explain) ~MK saki (id.)

2) J togi (companionship) ~MK sakoy (to associate)

3) J tanuki (raccoon dog) ~MK sark (wild cat)⁴

4) J tetu (iron) ~MK soy (id.)

5) J tubi (vagina) ~K ssip (id.). Vulgar K ssip (vagina) seems to be an intentional metathesis of K poci (id.), which is a taboo, which by saying backwards, the forbidden word might have lost its magic. K. poci and OJ pötö (id.) are also cognates, and OJ tubi (id.) would be an intentional metathesis with the same purpose.

6) J tatu (to stand) ~K sə (id.)

7) J tuyoi (strong) ~MK səy (id.)

8) J tate (length) ~K sero (id.)

9) J te (hand) ~MK son (id.)

10) J tosi (age) ~MK sər (id.)

11) J tori (bird) ~MK say (id.)

12) J matu-take (a mushroom) ~MK sak (bud) ~K ssak (id.)

#5. Japanese /m-/ corresponding to Korean /p-/

Martin proves Japanese /m/ corresponds to Korean /p/ in intervocalic and final position. This correspondence exists in initial position as well:

1) J mutugi (baby clothes) ~MK poroki (id.)

2) J miru (to see) ~MK po (id.)

3) OJ miko (basket) / mika (urn) ~MK pakoni (basket)

4) J mati (gore) ~MK pati (skirt)

5) OJ mari (to excrete) ~MK po (id.)

6) J mama/manma (meal) ~MK pap (id.)

7) OJ murasaki (purple) ~MK pharar (blue/green). I am not sure why the Japanese word has the ending of -saki. It may corresponds to MK sayk (colour). But, I could not find other such examples.

8) J muku (to peel) ~MK pari (id.)

9) OJ magu-papi (coitus) ~K ppakuri (id.).

#6. Japanese /n-/ corresponding to Korean /t-/

1) J na-wi (earthquake) ~K ttaŋ (earth)

2) J nora (field) ~K tir (id.)

3) J nipa (gardern) ~K ttir (id.)

4) J naru (to become) ~K toy (id.)

- 5) J noru (to ride) ~K tha- (id.)
- 6) J noroi (slow) ~K tti- (id.)
- 7) OJ nopo-kiri (saw) ~K thop (id.)
- 8) J nukui (warm) ~K tikəp (very warm)
- 9) J nasi (pear) ~K tarə (a kind of pear)
- 10) J natume (Chinese date) ~K təchu (id.)
- 11) J nado (etc.) ~K ttauy (id.)
- 12) J nafu (to twine) ~K ttah- (id.)
- 13) J niru (to resemble) ~K tarm- (id.)

#7. Japanese /-n-/ corresponding to Korean /-r(-)/

Shozaburo Kanazawa noticed interchangeability of intervocalic /-n-/, /-r-/ and /-y-/ in the transcription of the old Korean place names⁵. I also find that Japanese intervocalic /n/ corresponds to Korean intervocalic as well as final /r/:

- 1) J kona (powder) ~MK k_Ar (id.)
- 2) J tuna (rope) ~MK cur (id.)
- 3) J tanuki (raccoon dog) ~MK s_Ark (wild cat)
- 4) J hani (clay) ~MK h_Ark (id.)
- 5) J inu (dog) ~K iri (wolf)
- 6) J mune (ridge) ~MK m_Ar (id.)
- 7) J kane (metal) ~MK kuri (copper) cf. J aka-gane (id.)
- 8) J maneku (to invite) ~K purī- (to call)
- 9) J sune (leg) ~Mk tari (id.)
- 10) J tanagi (attic) ~K tarak (id.)
- 11) J yone (rice) ~MK yər- (to bear fruit) cf. J tane (grain)

#8. Japanese /t-/ corresponding to Korean /n-/

MK nuyək (straw raincoat) and K torongi (id.) will be cognate as Kanazawa's theory of /n/r/y/ interchangeability explains.

- 1) J tosi (age) ~MK nah (id.)
- 2) J tefu (butterfly) ~MK napu (id.)
- 3) J tu (harbour) ~MK n_Al
- 4) OJ ta (who) ~MK nu (id.)
- 5) J туру (to fish) ~MK naks- (id.)
- 6) J take (height) ~MK nopp- / noph- (high)
- 7) OJ katori (a silk cloth) ~MK kanīnkip (id.)
- 8) J katabira (hemp garment) ~MK k_Anīnpoy (id.)
- 9) J tura (face) ~MK nach (id.)
- 10) J tappa (height) ~MK nophi (id.)

#9. Japanese intervocalic /-r-/ corresponding to Korean /-n(-)/

- 1) J puru- (old) ~MK hən- (id.)

- 2) J da-kara (therefore) ~MK kani (id.)
- 3) J kara-miso (salty miso) ~K kan (saltiness)
- 4) OJ kura-tani (valley) ~MK konaysəy (in the valley)
- 5) J ura (inside) ~MK anh (id.)
- 6) J sar-u (to go away) ~K cina- (id.) As for Japanese /s-/ and Korean /c-/ correspondence, refer to Martin's [9b].

7) J gan (wild goose) ~MK kīyrəyki (id.) cf. J kari /karigane (id.)

8) OJ kara-kuni (Korea) ~K han-kuk (id.)

9) J kara-uso (outright lie) ~K han- (great). J kara will be cognate to K han, though it is semantically influenced by its homonyms kara (dry/empty) as can be seen in J kara-kaze (strong dry wind), kara-ibari (bluff), and kara-sawagi (much ado about nothing).

10) J karu-wi (wild sow) ~K kanna (loose woman) cf. siri-garu-onna (id., lit. woman with light buttocks). K kar-po (whore) and J karu-ko (woman-pimp) will be cognate.

#10. Japanese /-i-/ corresponding to Korean /-a-/

- 1) J pi (sun) ~MK hAY (id.)
- 2) J pi (fire) ~MK hoay (torch)
- 3) J piru (daytime) ~MK hARA (a whole day)
- 4) J sisi (flesh) ~MK sAR (skin)
- 5) J pidi (elbow) ~MK pARh (id.)
- 6) J ani (why) ~MK əNA (id.)
- 7) J pari (needle) ~MK panAR (id.)
- 8) J piro (fathom) ~MK pAR (id.)
- 9) J sidyuu/syocuu (often) ~MK cAcO (id.) ~K cacu (id.)
- 10) J mituru (to be worn out) ~MK maRA- (id.)
- 11) J siraberu (examine) ~MK sARphi- (id.)

#11. Japanese /-u-/ corresponding to Korean /-i-/

- 1) J tepu (butterfly) ~K napi (id.)
- 2) J inu (dog) ~K iri (wolf)
- 3) J tuba (saliva) ~K chim (id.)
- 4) J kura (saddle) ~MK kirīma (id.)
- 5) J o-tuke (miso-soup) ~K ccikae (pot-stew)
- 6) J tuma (skirt) ~MK chima (id.)
- 7) J utu (to hit) ~MK chi- (id.)

#12. Japanese /-u-/ corresponding to Korean /-i-/

- 1) J piyu (barnyard grass) ~MK pirīm (id.)
- 2) J idura (where) ~MK ətīrə (id.)
- 3) J suru (to lose) ~MK sir- (id.)
- 4) J iburu (to smolder) ~MK pīl (fire)

- kick), OJ kutu (shoe), OJ kati (on foot)
- 10) J kuse (bad habit) ~K par (id.) ~K pəris (manners)
- 11) J kupa (hoe) ~MK pərym
- 12) J kabe (wall) ~MK param (id.)
- 13) J kinu (silk) ~MK pitan (id.)
- 14) J kara-te (empty hand) ~K pin-son (id.). As for Japanese intervocalic /-r-/ and Korean /-n(-)/, refer to #9.
- 15) J kazaru (to decorate) ~MK piz- (id.)
- 16) J kusi (comb) ~MK pis (id.)
- #2. Japanese /p-/ corresponding to Korean /h-/
- 1) J pi (sun) ~MK həy (id.)
- 2) J pi (fire) ~MK hoay (torch)
- 3) J piru (daytime) ~MK həra (a whole day)
- 4) J pisame (heavy rain) ~MK hanpi (id.)
- 5) J piza (kneecap) ~MK həthiy (leg)
- 6) J poro-bi (to perish) ~MK hər- (id.)
- 7) J boro (rag) ~MK hər- (old)
- 8) J piki (short) ~MK hyok- (little/narrow). In our dialect (Ishito dialect), when silkworms get matured and ready to spin cocoons, they become shorter, which are called "piki".
- 9) J pi (gutter) ~MK hom (id.)
- 10) J bero (tongue) ~MK hyə (id.)
- 11) J piku (to pull) ~MK hyə- (id.)
- 12) J pundan (abundant) ~K hincən (abundance)
- 13) JD (Ishito dialect) pito-daru (vat): MK han-nip (big leaf)
- #3. Japanese /#-/ corresponding to Korean /k-/
- 1) J a (that) ~MK kī (it)
- 2) J asi (reed) ~MK kār (id.) as to Japanese /s/ and Korean /r/ correspondence, cf. [14c]
- 3) J aha (bubble) ~K kəphum (id.)
- 4) J abi (to bathe) ~MK kam- (id.)
- 5) J abara (ribs) ~metathesis ~K karpi < MK kar (ribs) ~J gara
- 6) J aburu (to roast) ~MK kup- (id.) ~J kuberu- (to burn)
- 7) J ami (net) ~MK kimīr (id.)
- 8) J aruki (walking) ~MK kərim (id.) ~J ayumi (id.)
- 9) J itupari (lie) ~K kəcismar (id.)
- 10) J iduru (to meddle) ~K kəchi- (to touch)
- 11) J use (to disappear) ~K kəci- (id.)
- 12) J eda (branch) ~MK kati (id.)
- 13) J erabu (to choose) ~MK kərhəy- (id.)

- 5) J musu (to steam) ~MK mil (water)
- 6) J susugu (to wash) ~MK sisil - (id.)
- #13. Japanese /-u-/ corresponding to Korean /-ay-/ Λ Y/
 - 1) J su (vinegar) ~MK say - (sour)
 - 2) J su (opening) ~MK say (id.)
 - 3) J -su (suffix for birds) ~MK say (bird)
 - 4) J suki (spade) ~MK sayki - (to carve)
 - 5) J sune (to sulk) ~MK sayo - (jealous)
 - 6) J sugaru (to copulate) ~MK sayhira (id.)
- #14. Japanese final /-i/ corresponding to Korean #
 - 1) J kuzi (lot) ~MK mut-kiri (fortunetelling) ~K kus (exorcism) cf. J mizu-kori (water ablutions)
 - 2) J puti (deep water) ~MK mot (pond)
 - 3) J pari (needle) ~MK panar (id.)
 - 4) J siki (formula) ~K sik (id.) cf. Chinese 式
 - 5) J ipi (meal) ~MK pap (id.)
 - 6) J adi (taste) ~MK mas (id.)
 - 7) J tutumi (package) ~K ssam (rice wrapped in leaves)
 - 8) J tanuki (raccoon dog) ~MK sark (wild cat)
 - 9) J simi (clothes moth) ~K com (id.)
 - 10) J kusi (comb) ~MK pis (id.)

I hope the evidence shown above will be a useful contribution to furthering Martin's ground-breaking work to prove Japanese and Korean cognate relationship. In the list I have not taken the trouble applying Martin's corresponding laws to each morpheme of the words in order to save space: it will be easy to apply his laws and a supplement of mine to them.

REFERENCES AND NOTES

- 1 Samuel E. Martin, Lexical Evidence Relating Korean to Japanese. *Language*, Vol.42, No. 2 (1986).
- 2 Fumihiko Ohtsuki, *Dai-gen-kai* (Showa 7). cf. Martin (1986), p.246.
- 3 Ishii, A Question on the Etymologies in the Japanese Dictionaries: Is tarahi (basin) an abridgement of ta (hand) - arahi (washing)? *Bulletin 38, Institute of Language Teaching Waseda Univ.* (1989).
- 4 cf. 崔世珍「訓蒙字會」(1537)影印版, Seoul 汎文社, 1969, 「狸 sark ri 俗呼野猫」. In Japanese the same Chinese ideograph is read as "tanuki".
- 5 金沢庄三郎「日鮮同祖論」刀江書院, S 4, pp157-160.

SEMITIC B AND W

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If one compares the basic sets of stops in the various branches of Lislakh (LL), the following patterns emerge:

LL	Eg	Sem	Ber	Ch	Om	Cu	IE
p b bH	p b f	p b -	f b -	p b b?	p b b?/p?	p b p?	p (b) bh
t d dH	t d ġ	t d t̥	t d ġ	t d d?	t d t?	t d t?	t d dh
k g gH	k g q	k g q	k g ġ	k g k?	k g k?	k g k?	k g gh

(For sources see references.) Three of the seven sets are defective in the labials. Semitic and Berber have nothing corresponding to ****bH**, while Indo-European generally has ***w** from ****b**, though a few **b**'s survive. The latter situation is clear, as ****b** is accounted for, but that in Semitic and Berber is not. We concern ourselves here with Semitic.

We first need to examine one of our premises, ****h**. This has been taken to be ? (Hodge 1988) or a cover symbol for ? or h (Hodge f-b). The extant languages show three elements: glottalization, aspiration and pharyngealization. Present evidence would indicate that all three of these were in the proto language. Generally speaking, an extant language reflects only one of them as a prevailing formative, but there are exceptions. In Semitic we have both glottalization (as in Ethiopic Semitic) and pharyngealization (as in Arabic). Although pharyngealization is dominant in Arabic, q as is described as 'a uvular voiceless unaspirated stop' by al Ani (1970:32). In Cairene Arabic it is ?. If we use p for pharyngealization, we have Arabic t̥, ġ, s̥ and z̥ from ****t̥p**, ****ġp**, ****s̥p** and ****z̥p** respectively, while q is from ****k̥?**. Ethiopic, on the other hand, has t̥?, k̥? s̥?.

Turning to Indo-European, we find aspiration in Skt. bh dh gh and Gk. ph th kh from ****p** or ****b** plus ****h**, ****t̥** or ****d̥** plus ****h** and ****k̥** or ****g** plus ****h**. Germanic, Slavic, etc. b̥ d̥ g̥ are more likely to have come from the plain consonants plus ****?**. Likewise the b̥ of Skt. pibati and Lat. bibere 'drink' has been taken from ***p** plus ***?** by some Indo-Europeanists. We

therefore find in both language groups a dominant pattern in a given language or set of languages, with a minor role played by another pharyngeal or glottal component. Having said this, we shall use H in the following discussion as its ambivalence (actually trivalence) is useful.

Several possibilities suggest themselves in order to explain the gap in Semitic: 1) **b became *w, as in Indo-European. The pattern is p w b. 2) **bH merged with **p, so that we have p b p. 3) **bH merged with **b, hence p b b. 4) no **bH reflex occurs, hence p b ∅. (cf. Hodge f-b.)

To test the first hypothesis we look for patterned occurrences of b and w in Semitic. There is in AAs a recognizable drift of b to w after vowels so that finding instances of this in Semitic does not surprise us. The base **l-b 'whole', with prefix (s-), is reflected by Sem. *-šluw- 'to be tranquil' (Fr 4.10n). Compare Eg. s-n-b 'whole, healthy' from **(s-)N1-b and Sem. *šalim- 'whole' (Fr 4.10). Indo-European has w in *solwo- 'whole' (P 979) and m in Toch. B solme 'entirely' (Bk 919). Likewise the Akkadian variants abi:lu, awi:lu and ami:lu 'human being' show a shift of b to w, with the m coming from **Nb. Despite the dates of attestation, neither b nor w becomes m (contra the literature, cf. Jucquois 1966.239-40).

In Hebrew there are hardly any initial w's, which argues strongly against the hypothesis that b became w. Even so, we find several instances where a base with initial **b is reflected in Hebrew as initial w-. The form wē- (u-) is normally 'and', but we find it used with meanings such as 'among, from, of' and even 'on': 'The ark of God was at that time among (u-) the Israelites' (1 Sam 14.18 TNK). 'Commander of (wā-) the Cherethites' (2 Sam 8.18 TNK). 'Abel of (u-) Beth-maacah' (2 Sam 20.14 TNK). 'The palm trees were carved on (wā-) the wall' (Ez 41.20 TNK). These are clearly derived from **b-w 'place', the same base from which Heb. bā- 'in, from' and mē- 'from' are derived. The fact that three of these occur in the same narrative lends credence to the view that this was a matter of dialect.

Although bi- 'in' does not occur in Akkadian, we have the (to us) curious use of the sign PI for wā, wi, wē, wu. This sign had the values pi and bi in pre-Hammurabi times. If, as is likely, there then existed some b/w alternations, this could well have led some speakers inclined to w's to use PI in its w values (re PI cf. Jucquois 1966.239).

A large number of bases with initial ****b-** were examined and the following selection made in order to illustrate the Semitic pattern vis-à-vis the Indo-European one. Semitic examples are given, with some supporting evidence from other AAs languages, then some Indo-European roots from the same base. Where an example differs from the simple base form, a reconstruction precedes it, with affixes given in parentheses.

****b-k** 'produce at an early time'. Sem. ****b-k(-lH)**: ***b-k-r** 'first-born, firstfruits' (LaS 195, Les 87.94). Eg. ****b-k(-l)**: **b-k-3** 'to be pregnant' (Wb 1.481). IE ***(s-)b-k(-lH)**: ***swekru-** 'mother of the bridegroom' (P1043).

****b-k** 'to bend'. Sem. ****(?H-)b-k**: Ar. **ḥabaka** 'to weave', Soq. **ḥ-b-k** 'to embrace' (Les 38.159), Heb. ***(?)b-k**: **ʔ-b-k** (hit.) 'whirl up' (Hol 2). Ch. ***b-k** 'bow (n.)' (J-S 50). IE ***wek-** 'to bend' (P 1134), ****bH-gH**: ***bheugh-** 'to bend', OE **boga** 'bow' (P 152).

****b-k** 'to heat to melting point'. Sem. ***(s-)b-k**: G. **sabaka** 'smelt', Ar. **sabaka** 'pour into a mold' (Les 87.483), ***(t-)b-k**: Akk. **tabaku** 'to pour out'. Ch. ***b-k** 'to burn, roast' (J-S 57, 214). IE ****bH-k**: ***bhok-** 'to burn (?)' (P162).

****b-k** 'to cry out'. Sem. ****b-k(-y)**: ***b-k-y** 'to weep' (LaS 195, Les 87.94). Ch. ***b-k** 'mouth' (J-S 187). IE ****b-k(-b)**: ***wekw-** 'speak' (P 1135).

****b-l** 'to make noise'. Sem. ****b-l**: G. **nābala** 'boil, make noise', **nābl** 'musical instrument' (Les 87.383). Eg. ***(s-)b-l**: **s-b-3** 'to teach' (Fa 219), ****b-Nl(-t)**: **b-n-t** 'harp' (Fa 82). IE ****bH-l**: ***blē-** 'to bleat' (P 209), ***(s-)bH(?)-l**: ***spel-** 'to say aloud' (W 63), ****b-lH**: ***wer-** 'to speak' (W77), ****bH-l** ***bhel-** 'to cry out' (W 7).

****b-l** 'to shine, burn' (AAs ***bl** St 156). Sem. ****b-l(-C₁-C₂)**: G. **balbala** 'to blaze' (Les 87.95) ****b-l(-sH)**: G. **balāša** 'to sparkle' et al. (Les 87.97). Eg. ***(s-)b-l**: **s-b-3** 'star' (Fa 219, Wb 4.82), ****b-l(-gH)**: **b-3-q** 'bright' (Fa 78, Wb 1.424). IE ****b-lH**: ***wer-** 'to burn' (W77, p 1166), ****b-l(-k)**: ***wle-k-** 'to shine' (P 1178), ***(s-)b-l**: ***swel-** 'to shine, burn' (W 68, P1045). Note also Cu. ***war?** 'to light up' (Eh 87.87), probably reflecting ****b-l**, and hence a **b** to **w** shift.

****b-l** 'to bear a child'. Sem. ****b-l**: Ar. **ḥabila** 'to conceive a child' (W-C 155), ****b-lH**: Aram. **bar** 'son' (Hol 400), ***(?)b-Nl**: Ar. **ʔibn** 'son', ****Nb-lH**: Akk. **ma:ru** 'son'. Eg. ****b-Nl(-C₂)**: **b-n-n** 'beget' (Fa

82). Ch. ****b-lH**: WCh ***bara** 'child' (St 154). IE ****bH-l**: Lat. **filius** 'son' (contra W 13, P 241), cf. ****b-lH** in ***wīro-** 'man' (W78, P1177).

****b-l** 'to select, choose'. Sem. ***b-lH(-C₂)**: ***b-r-r** 'to separate, choose' (Les 87.107). Ber. ****b-lH(-s)**: Tou. **ebres** 'to sort' (Fo 100). IE ***wel-** 'to wish, choose' (W 75, P 1137), ****bH-l**: **bhili-** 'friendly' (P153).

****b-l** 'to cut up, bite off'. Sem. ****b-l(-hH)**: ***b-l-C** in G. **bal^Ca** 'devour' et al. (Les 87.94). Eg. ****b-l(-s)**: **b-3-s** 'to devour' (Fa 78). Cu. ****b-lH**: SC ***biir-** 'to cut off' (Eh 80.138). IE ***wel-** 'to tear, wound' (P 1144), ****bH-l(-w)**: ***bheleu-** 'to strike' (P 125).

****b-l** 'deteriorate'. Sem. ****b-l(-y)**: ***b-l-y** in G. **balya** 'be old, worn out' et al. (Les 87.98). Eg. ****bH-Nl**: **f-n** 'to be weak' (Fa 98). Cu., with **l** to **∅**: EC ***ba?** 'to become obliterated' (Sa 79.50), ****b-lH**: Or. **beera** 'old woman' et al. (Les 87.5). IE ***wel-** 'to deceive', Latv. **velts** 'futile' (P 1140), ****b-lH**: some forms under ***swer-** 'to suppurate' (P 1050).

These examples can be multiplied. As we rarely find both **b** and **w** for the same roots in Semitic, we can fairly conclude that it does not pattern like Indo-European. The occurrences of **w** for ****b** in Semitic are sporadic and dialectal and probably reflect a like situation in LL itself. Cushitic, as reconstructed by Ehret (1987), shows a number of forms with initial ***w-** where **b-** occurs elsewhere. For example: ***waa?** 'to rise, go out' (Eh 87.133), Sem. ***b-w-?** 'to go in' (LaS 200). ***war-** 'to call out' (134); see ****b-l** 'make noise' above. ***war-** 'other' (134). Base ****b-l** 'other, new' (Hodge f-a). ***wa^C-** 'to run, flow' (136), Eg. **b-C-b-C-t** 'stream' (Fa 81), Sem. ***-nba^C-** 'to gush out' (Fr 3.22a). In Chadic some languages have **v-** from ****b-**, and there are a number of alternations with **w** with **b** and other consonants (Newman 1977.15-16). Berber calls for special treatment, having more instances of **w-** from ****b-** than in most AAs. For example, Touareg has: **wuk** (an exclamation of astonishment) (Fo 1,475, q.v.); see ****b-k** 'cry out' above. **awā** 'speech' (1,477); ****b-l** 'make noise' above. **awl** 'to turn' (Fo 1,480); ****b-l** 'to turn, twist' (IE Hodge 1986.152). **awl** 'to see' (Fo 1,493); ***b-l** 'eye' Co. **bal**, Ber. (Ghadamès) ***well** (Vyc 27 q.v.).

The second possibility for closing the Semitic gap is that ****bH** merged with ****p**. Alternations between **p** and **b** have been noted in the literature since the Middle Ages (e.g., Ibn Barun, Wechter 1964). Some examples are: Ar. **fa?ara** 'to dig the earth', **ba?ara** 'to sink a well'; Heb. **pizzar** and **bizzar** 'to

disperse' (Hol 290, 36); Aram. pašal and bašal 'to split' (Jas 2.1205, 1.184). Leslau relates G. ʔanfasfasa 'overthrow' to basbasa 'overthrow' (87.168, 109, but see meanings of latter). There are quite a few of these but nothing like the number we would expect to find if **bH became p. These apparent relationships must be dealt with, but **bH to p does not seem to be the answer. A merger of **bH with **b would also explain some of the p-b alternations, since **p plus **H gives **bH, but again we do not have examples in quantity enough to be sure of the answer. It is likely that the p-b pairs go back to developments in the proto language, and we continue to study the problem.

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V

PHONOLOGY

AUTOSEGMENTAL AND STRATIFICATIONAL MODELS OF PHONOLOGY

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0. Introduction. In the mid-1970s, John Goldsmith presented an MIT dissertation (Goldsmith 1976) setting forth a new approach to the arrangement of classical suprasegmental properties. He tried to show that classic (pitch-manifested) tone in particular can be better handled if tonal properties are abstracted away from the segmental properties of vowels and consonants. Orthodox generative phonology had followed Jakobson's approach to these matters, seeing tones as simply features of syllabic phonemes, meaning that otherwise identical vowels with distinct tones were distinct phonemes, since they were distinct bundles of features.

As most members of LACUS will realize, Goldsmith's approach was "new" only in the context of the Chomsky-Halle orthodoxy. The abstraction of suprasegmentals was quite standard in Neo-Bloomfieldian phonology, and further extension of such abstractability had been suggested in such works as Harris 1944 and Hockett 1955, as well as by followers of other schools, notably that of J. R. Firth (cf. Firth 1948 and other papers in Palmer 1970).

From these beginnings, autosegmental ideas have been gradually extended until it is fair to say that an elaborated version of this model forms a very important part of a new orthodoxy among phonologists in the Chomsky-Halle tradition. A stratificationalist reading such recent publications as Goldsmith 1990 and Kaye 1989, however, will realize that this elaborated model has a remarkable similarity to stratificational models. In particular, comparison may be made with the model set forth in Lockwood 1972, which was based on Lamb's view of about 1970. The present paper will explore the similarities between these views as well as their differences, and point out that there is a prospect that future developments may lessen, if not totally remove, at least one of the major differences.

1. The Notion of Tiers. On the assumption that not all readers will be familiar with the autosegmental model, a brief account of the essentials of this approach is given as a preface to further discussion.

The central notion in the autosegmental model appears to be that of the TIER. Accounts of the model usually begin with a discussion of tonal phenomena. The following example has been adapted from Chapter 1 of Goldsmith 1990. The basic data is presented in Table I. We can analyze this material in terms of morphemes and allomorphs as presented in Table II. As can readily be observed, all morphemes in this data except the subject pre-

Table I. VERB FORMS FROM KIKUYU (From Goldsmith 1990:12)

	LOOKED AT	SENT	
1	tòròrìré	tòtòmíré	WE — —
2	tòmòròrìré	tòmòtòmíré	WE — — HIM
3	tòmàròrìré	tòmàtòmíré	WE — — THEM
4	màròrìré	mátómíré	THEY — —
5	mámòròrìré	mámòtòmíré	THEY — — HIM
6	mámàròrìré	mámàtòmíré	THEY — — THEM

Table II. MORPHEMIC ANALYSIS OF KIKUYU VERB FORMS

MORPHEME	ALLOMORPHS	GLOSS
{tò}	/tò/	WE
{má}	/má/	THEY
{mo}	/mó/ ~ /mò/	HIM
{ma}	/má/ ~ /mà/	THEM
{ròr}	/rór/ ~ /ròr/	LOOK AT
{tom}	/tóm/ ~ /tòm/	SEND
{iré}	/iré/ ~ /ìré/	PAST TENSE ¹

fixes show tonal allomorphy. The ultimate treatment of this data should, according to Goldsmith, reflect the following generalizations (from Goldsmith 1990:12-13 with some paraphrase): (1) The first two tones of a word are always the same; (2) The final vowel is always High in tone; (3) With the root ròr the penultimate vowel is always Low in tone, while with the root tom the corresponding vowel is always High; and (4) The tone of the vowel following the Object Marker mo is always Low; the tone of the vowel following the Object Marker ma is always High.

Goldsmith's formalization based on these observations is summarized in the various parts of Figure 1. In part (a) we see each of the morphemes abstractly associated with a single tone. In part (b), we see the representations of two contrasting words in the form of a concatenation of these abstract segment + tone combinations. Each of the parts of such a representation is said to form a tier, those represented here being the SEGMENTAL TIER and the TONAL TIER. In parts (c) and (d) we see the introduction of ASSOCIATION LINES, which are used in this model to connect different tiers in the less abstract forms of representation. For this material, these lines indicate exactly which tones associate with which vowels. By a rule treated as part of Kikuyu grammar, initial association lines are added as in (c), such that the first tone is associated with the second vowel. Then the full representation at (d) is produced by the so-called ASSOCIATION CONVENTION and one more rule.²

The essential idea behind the separation of these tiers is that alternations affecting tone can be more easily explained if the traditional segment is separated into two parallel streams, each of which has its own segments (hence AUTOSEGMENTS). Then historical changes can be explained in terms of shifts in the as-

Figure 1. SUMMARY OF GOLDSMITH'S ACCOUNT OF KIKUYU TONE.

(a) Morphemes with Abstractly Associated Tones

to	ma	mo	ma	rɔr	tom	irɛ
LOW	HIGH	LOW	HIGH	LOW	HIGH	HIGH
WE	THEY	HIM	THEM	LOOK-AT	SEND	PAST

(b) Abstract Representations of Two Words

to	ma	rɔr	irɛ	ma	mo	ton	irɛ
LOW	HIGH	LOW	HIGH	HIGH	LOW	HIGH	HIGH
WE	LOOKED	AT	THEM	THEY	SENT	HIM	

(c) Rule Provides Line to Associate Tone 1 with Vowel 2

to	ma	rɔr	irɛ	ma	mo	ton	irɛ
LOW	HIGH	LOW	HIGH	HIGH	LOW	HIGH	HIGH

(d) Remaining Associations by Convention (1) and Rule (2)

to	ma	rɔr	irɛ	ma	mo	ton	irɛ
2	1	1	1	2	1	1	1
LOW	HIGH	LOW	HIGH	HIGH	LOW	HIGH	HIGH

sociations between the tiers. Synchronic alternations resulting from such shifts can be explained in similar terms.

This tiered model is one of various approaches to phonology based on the same essential idea, namely that human speech involves the simultaneous coordination of various articulatory processes, and that it can be compared to the coordination of instruments in an orchestra, as represented notationally in a symphonic score. Such an idea is seen, for instance, in the SEQUENCE DIAGRAMS of Pike (1947:9-11), which show the activities of various articulatory organs over a span of time. Within the stratificational school, this coordination has been alternatively modeled in the SWITCHMATRIX of Lockwood 1976 and by the model of SEQUENTIAL ONSET FEATURES suggested in Reich 1976.³ Broadly similar ideas are also seen in Griffen 1985.

While Goldsmith began by just separating tonal and segmental tiers, it was soon realized that many phonological phenomena, especially those involving assimilative and dissimilative processes and relationships, could be handled similarly, and that such a treatment would require the recognition of many more distinct tiers. Among the phenomena which have been treated in this fashion are assimilation regarding position of articulation, the effects of vowel properties like fronting upon neighboring consonants, cases of vowel harmony based on fronting, rounding, and/or the position of the tongue root, various nasalization phenomena, and many others. As additional tiers were recognized to deal with such cases, the only segmental property left was the iden-

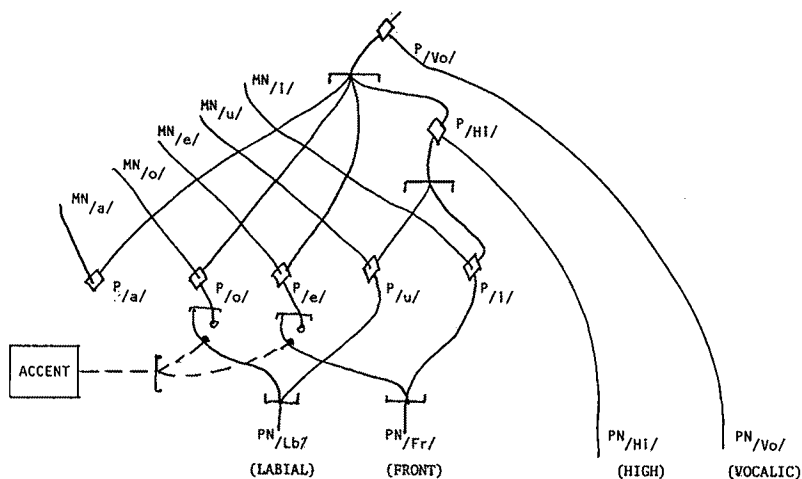
tity of the segment as such, which came to be abstracted as the SKELETAL TIER.⁴

2. Comparison to the 1970 Stratificational Model.

2.1 General Remarks. A distinguishing characteristic of all models of this sort is that they separate the different properties of traditional phonological segments, treating those individual properties rather than the segments as the primary basis for the organization of phonology. Beyond this, the most crucial characteristic of such models is that they allow a single property to be associated with either one segment or some combination of segments, seeing this not as a simple recurrence, but as a multiple association of one element.⁵

This paper focuses on the relation of this autosegmental model with the model of phonology presented in Lockwood 1972. The fact that stratificational phonology sees segments as composed of several simultaneous properties, a characteristic called BUNDLING in Lockwood 1976, is demonstrated by the example in Figure 2, which presents the essentials of the vowel system of Belorussian. This diagram shows the property of VOCALICITY specified for vowels in general, that of HIGHNESS specified for a subset of these, and the properties of LABIALITY and FRONTNESS, which are constant

Figure 2. *TACTICS AND REALIZATION FOR BELORUSSIAN VOWELS.*



for high vowels, but present or not, depending on accent conditions, for the traditional mid vowels /e/ and /o/. The effects of this structure for particular vowels are summarized in Table III.

Table III. LEVELS IN THE ANALYSIS OF BELORUSSIAN VOWELS.

MORPHONIC	/a/	/e/*	/e/**	/o/*	/o/**	/i/	/u/
S-PHONEMIC	Vo	Vo	Vo	Vo	Vo	Vo	Vo
	a	e	e	o	o	Hi i	Hi u
PHONONIC	Vo	Vo	Vo	Vo	Vo	Vo	Vo
		Fr		Lb		Hi Fr	Hi Lb

CLASSICAL							
PHONEMIC†	/a/	/e/	/a/	/o/	/a/	/i/	/u/

*Accented. **Unaccented. †For comparison--not part of the stratificational structure.

Elsewhere in Lockwood 1972, there is clear evidence that a single property can be associated with more than one segment, a property which may be termed PROSODIZATION, in the discussion of vowel harmony. It is suggested, for example, that the vowel harmony in the Kasem language of West Africa ought to be treated in terms of the distribution of a property termed OPENNESS.⁶ In a morphonic representation, this property would belong to a root, whereas the phonotactics would show its realizant to be distributed over a whole phonological word. Figure 3 presents the morphonic and phonemic traces for two words involving this property. In a contrasting type like /liɖə/ MEDICINE vs. /liɖi/ MEDICINES, the openness is simply treated as absent.

A stratificational system accounting for Goldsmith's Kikuyu data can also be given. Figure 4 presents the phonotactic word and syllable structures relevant for this material. This system shows that the first tone provided to the phonotactics will be a prosody over the sequence of the first two syllables. Then the post-initial tones provided will be realized on each later syllable as it comes. Given the appropriate morphonic input, the phonemic realization of a tone one syllable later than at the more abstract level will come as an automatic consequence of this configuration.

2.2 Detailed Comparison. The following major similarities exist between the two models being compared:

- (1) Both models allow classic suprasegmentals like tone to be abstracted and associated with segmental sequences of various lengths and to be treated, where appropriate, as separate morphemes;
- (2) Both models allow properties like nasality and properties involved in vowel harmony systems to be abstracted as function-

Figure 3. TREATMENTS OF SOME KASEM VOWEL HARMONY DATA.

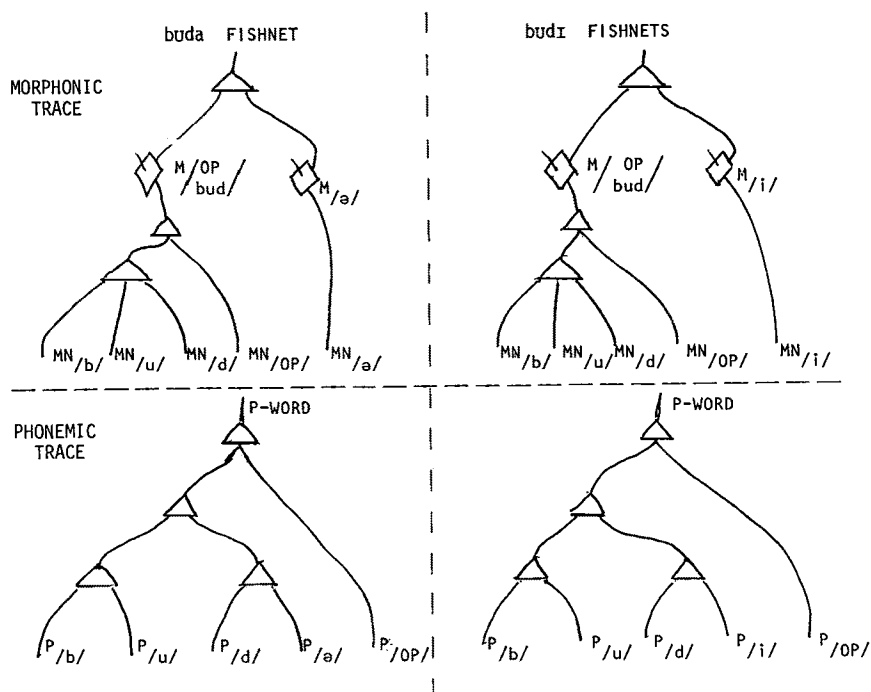
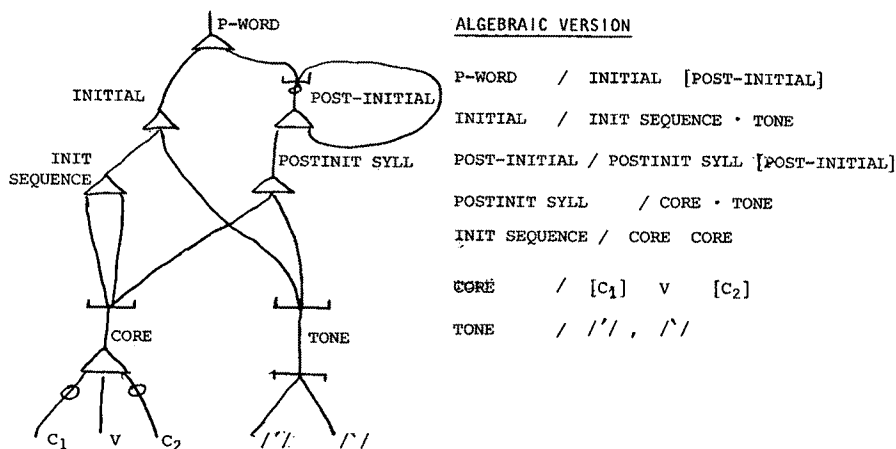


Figure 4. PHONOTACTIC SYSTEM FOR THE REALIZATION OF KIKUYU TONE.



al equivalents of classic suprasegmentals, based on their behavioral similarities and unconstrained by their phonetic nature.

- (3) Both views pay careful attention to phonotactic constructions such as syllables and phonological words and the roles they play in the treatment of phonological alternations.
- (4) Both models allow factors of phonological arrangement to be treated as separate morphemes when this seems to be appropriate.⁷

Still, since these models have arisen out of quite distinct traditions of linguistics, there are a number of differences between them, the most important of which are the following:

- (1) Autosegmental formulations generally have followed the usual generativist practice of using a derivational model, while stratificationalism has always used a realizational model and has insisted on the greater realism of this approach.
- (2) Also true to its generativist origins, autosegmental phonology makes no effort to recognize a level of distinctiveness with a biunique relation to phonetics, while the phononic level in the stratificational model has precisely this property.
- (3) A central feature of the autosegmental model is the representation of the relations between various tiers by association lines and the treatment of historical changes and synchronic alternations of various sorts in terms of changes in the connections shown by such lines. No direct equivalent of these lines is found in the stratificational model, which instead uses the different configurations of properties provided by the differences between the tactic patterns of different strata.
- (4) In autosegmental phonology, the skeletal tier is regularly used to distinguish between affricates or unitary diphthongs and otherwise identical bisegmental (or multisegmental) sequences. Affricates or diphthongs are shown with two connections to the same skeletal point, while true sequences have connections to two or more distinct skeletal points. No analog of this has ever been proposed in stratificational phonology, which would see the differences in terms of distinct levels of abstraction, the phonological and the phonetic.⁸
- (5) The motivation for the autosegmental model seems most of all to be a desire to provide an explanation for the various phonological phenomena it treats. Stratificationalism, on the other hand, seeks to provide an economical account of the data, but sees that account as only the foundation for the explanation which is ultimately to be sought.

3. Skeletal Morphemes. The major example to be considered in this paper will elaborate upon the fourth point of similarity between the models, as sketched in §2.2 above, according to which either approach has the possibility of recognizing features of phonotactic arrangement as separate morphemes. Goldsmith 1990 contains an interesting and instructive example of this in its

treatment of some verb-stem data from Sierra Miwok, a Penutian language of California. Table IV presents a representative selection of such data, with two examples each of three stem types (I-III), as reflected in the column labeled "Basic Stem". The second, third, and fourth columns show morphologically contrasting stem forms which show exactly the same pattern for all the stem types. Functionally, these stems combine with various affixes in a manner comparable to the various ablaut grades of Indo-European roots.

Table IV. VERB STEM DATA FROM SIERRA MIWOK.⁹

	BASIC STEM	SECOND STEM	THIRD STEM	FOURTH STEM	GLOSS
I	kicaaw huteel	kicaww hutell	kicaw huttel	kicwa hutle	BLEED ROLL
II	celku wimki	celukk wimikk	celluk wimmik	celku wimki	QUIT SPEAR
III	hamme ?uppi	hame?? ?upi??	hamme? ?uppi?	ham?e ?up?i	BURY DIE
SKELETAL					
	STRUCTURES	CVCV(C)C	CV(C)CVC	CVCCV	

Goldsmith's discussion of this material involves the comparison of a traditional generative account with his own approach. The former includes various rules of /?/-insertion, metathesis, and gemination, while in the latter he recognizes the skeletal structures shown at the bottom of the data as separate morphemes. Details of his formalization are in Goldsmith 1990:87-95.

The stratificational literature does not contain a treatment of anything quite like this data. The closest approach to it is the treatment of SPECIFICATIONAL ANATAXIS in Lockwood 1977. This term refers to a systematic meaningful difference of order which can be abstracted as a separate morpheme. Goldsmith's work on this material suggests, however, that more complex differences of ordering can also profitably be abstracted as morphemic units. A stratificational treatment following the basic principles suggested by Goldsmith would view each of the non-basic stems as consisting of the morpheme present in the basic stem together with one of three additional contrasting morphemes. Since these extra morphemes are clearly neither roots, prefixes, nor suffixes, stratificational terminology would call them SIMULFIXES, treating them as abstractly simultaneous with the root. So in general terms one of these Sierra Miwok stems would consist of a root with an optional simulfix. The simulfixes involved may conveniently be labeled $M/2/$, $M/3/$, and $M/4/$ based on the labels used in the table. The phonotactics would then receive information about the roots along with, whenever relevant, one of these simulfixes. Each of them would further be equivalent to a morphon, a morphophonemic unit whose realizant would be a specification about how to realize the accompanying morphons of the root.

A summary of the effect for each of the three marked stem

types is given in Figure 5. In part (a) of the figure, one can see that in the presence of a signal from $MN/2/$ the phonotactics will put out the consonants and vowels in the order shown, including the reduplication of the final consonant, noted as Rd and shown graphically by the triangular node above C_3 . The node below this will lead to C_3 if such a third consonant is signaled in the root, but otherwise $/2/$ will be automatically supplied as a matter of EMPTY REALIZATION. The structure at (b) is similar except that the second consonant (C_2) is the one reduplicated; the structure at (c) has a different order of V_2 and C_3 and lacks the reduplication.

Figure 5. *PRELIMINARY SKETCH OF SPECIFICATIONAL EFFECTS IN SIERRA MIWOK PHONOTACTICS.*

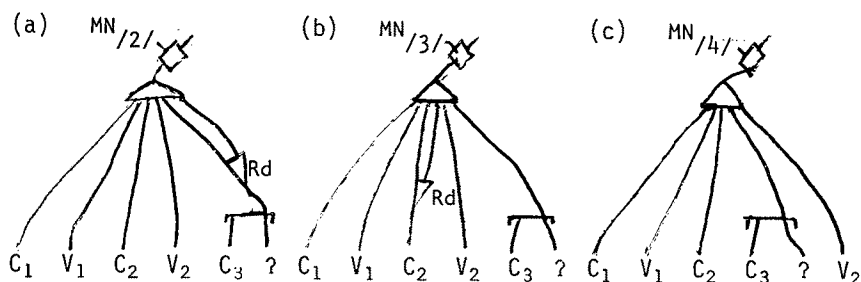


Figure 6 integrates these three structures and provides a place for the general syllable structures (which are not detailed since much more data would be necessary to allow them to be fully deduced). These general structures will operate in the absence of signals from any of the three specificationally-realized simulfices. In this integration, it will be noted, the initial $C_1 V_1 C_2$ sequence, which is common to all the stems considered, is represented just once, and the simulfices are connected only to the subsequent portions of the stem structure, where the actual differences are found. Such an elimination of redundancies is an automatic consequence of the stratificational approach, though it does not seem to be matched in the autosegmental treatment of these particular facts. If this turns out to be generally true, it would be an advantage for the stratificational approach as far as economy is concerned.

4. Conclusion. The discussion in §2.2 outlined four major similarities and five important differences between the autosegmental and stratificational approaches to phonology. In this conclusion, it is of interest to note an additional trend which might eliminate one, and possibly more, of the remaining differences. This concerns the first of the differences listed, involving the use of derivation instead of realization. In the concluding section of his last chapter, Goldsmith states the following:

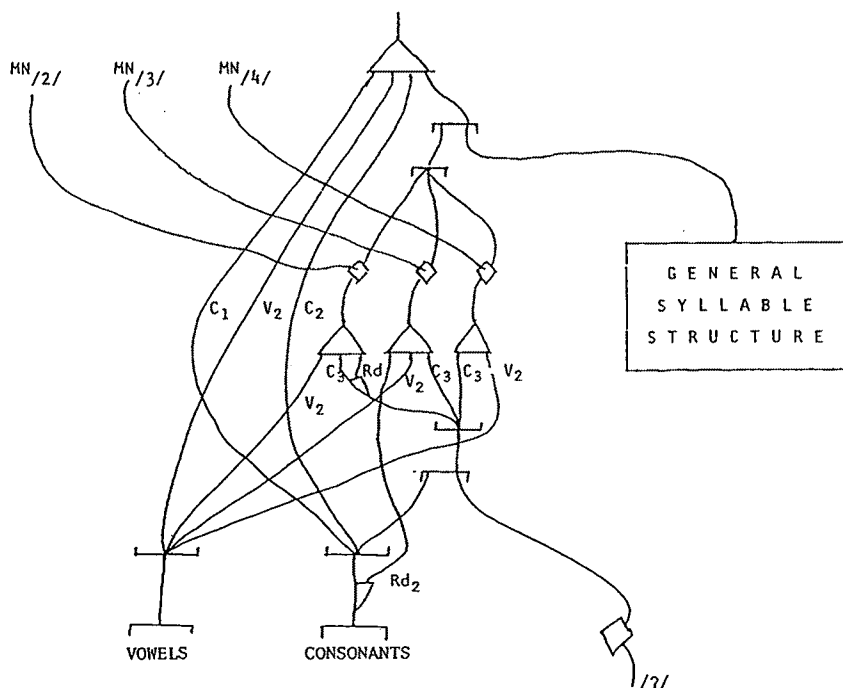
With respect to the notion of rules, throughout most of this book we have retained the traditional generative

conception, according to which rules come with a structural description and apply if that description is met. ... I believe that this notion stands in need of serious revision. ... Now, ... we may proceed to a novel and even more compelling picture of the nature of phonology, in which rules interact with phonotactic conditions on a small number of levels to develop representations at each level satisfying the conditions stated there. (1990: 331)

This statement seems to indicate quite clearly that Goldsmith is moving away from the derivational conception. Indeed, although he does not yet go so far as to state (with Lamb) that a language is properly viewed as a system of relationships rather than a set of objects with rules, it still seems fair to say that this revised conception is essentially a stratificational one. If this program is realized in future work, autosegmental phonology will be taking a major further step in the direction of the stratificational view.

The adoption of such a revision might also lead, it seems logical to say, to a reconsideration of some of the other points of difference outlined above. This applies particularly to the biuniqueness question, since Lamb has long claimed that the generative position on this arose from derivational assumptions. If it leads to a truly relational view, furthermore, it might.

Figure 6. AN INTEGRATED FRAGMENT OF SIERRA MIWOK PHONOTACTICS.



result in an understanding that the association lines just represent phonotactic relationships. Even at the present state of development, there seems to have been enough assimilation to stratificationalism within this model to allow a more fruitful interaction between stratificationalists and autosegmentalists than with proponents of the traditional Chomsky-Halle model.

NOTES

¹Goldsmith is vague about the meaning of this suffix, characterizing it simply as a "tense suffix" (1990:12). Examples in Gecaga and Kirkaldy-Willis (1953:17-19) make it clear that it indicates a past tense. Forms with this suffix and no other tense affix indicate a past earlier the same day, but more remote past tenses can be indicated by the use of prefixes in addition to this root.

²The Association Convention automatically provides that tones after the initial association will be in a one-to-one relation to vowels as they come. The additional rule for the association of the first vowel with the first tone applies only when there is no prior tone on the utterance which could be associated with this vowel, e.g. when it is utterance-initial. (Cf. Goldsmith 1990: 14.)

³Ultimately, both Lockwood 1976 and Reich 1976 can be traced to a suggestion made by Reich (comment during a 1973 conference) and developed in different directions by the two authors.

⁴Goldsmith's §6.2.2 (1990:79-83) provides a discussion of alternate models of feature organization compatible with autosegmental principles. See especially figures 4-6, illustrating the use of the "class-node" and the "spiral-notebook" models.

⁵Remarks on pages 3-4 of Goldsmith 1990 make it abundantly clear that the author is well aware of the relation of his views to those proposed in the 1940s and 1950s by such scholars as Firth, Harris, Hockett, and Pike

⁶More recent research (e.g. Gregersen 1976) strongly suggests that the term "openness" in such a vowel harmony system should be replaced with "retracted tongue root". The retention of the older term here is not intended to suggest disagreement with this view.

⁷See §3. below for an example of this type of analysis.

⁸So the Polish pair /čy/ *INTERROGATIVE PARTICLE* vs. /tšy/ *THREE* would be distinguished by the attachment of both [t] and [š] to a single skeletal point in the former versus a sequence of two skeletal points in the latter. The traditional stratificational approach would speak of a difference of level in such a case, together with differences of phonetic detail which make the distinction audible.

⁹Freeland 1951 is the original source of Goldsmith's Sierra Miwok data. The transcription here follows Goldsmith (1990:85) in the use of geminates for Freeland's C' and V'. Freeland also describes a fourth variety of primary verb stem (1951:95) which is ignored by Goldsmith, as it is here.

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FUNCTIONAL COMMUNICATION: DATA FROM SPANISH *

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INTRODUCTION

It is generally accepted that linguistic research should have a rather broad focus, with the purpose of finding every possible explanation for the problem being examined. For example, nowadays most linguists recognize that the dichotomy between synchrony and diachrony cannot be maintained in all cases, given that synchronic variation in language is often the breeding-ground for diachronic change. Studies of variation in present-day language usage can provide suggestions of changes which may occur in the language in the future. In addition, it is well known that ideal native speakers living in homogeneous speech communities do not exist. Therefore, it is necessary to examine the socioeconomic structures of the community, among other things, in order to understand the differences in usage of linguistic variables among the speakers of that community. Also, some linguists have carried out studies of cognition, incorporating methodology developed for psychology, as a means of accessing the linguistic competence of native users of a language. Questionnaires, psychoacoustic tests, and methods of quantitative analysis have provided extremely important data for linguistic studies. In addition, phoneticians have always recognized the importance of methodologies from physics as a means of determining the acoustic properties of speech. Analyses of vowels and consonants, as well as studies of suprasegmentals such as stress and intonation, offer very useful information for research on speech production and perception.

THE FUNCTIONAL POINT OF VIEW

In a similar vein, some linguists have noted the importance of the study of the uses and the function of language. Language exists for the purpose of communication of ideas among people, and any linguistic study should take into account the function of the variable which is being investigated. For example, when a word falls from usage, it is probably because there is another word or expression in the language to express the concept, or because that concept no longer needs to be communicated, for whatever reason. In the same manner, many studies of the pronouns of address (the equivalents of *you*) in contemporary Spanish¹ find that the use of the familiar *tú* is much more widespread among younger speakers than among older speakers, and that *tú* is directed to all types of interlocutors by the young: that is, they use *tú* with everyone. One explanation for this phenomenon may be that young people have not acquired the norms of sociocultural interaction which would dictate the usage of the formal *usted*², and that, for this reason, they do not have the need to communicate those differences

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¹See a discussion of this research in Uber (1985).

²See Marín (1972).

to their interlocutors. On the other hand, in Bogotá, Colombia, where there exist very well-defined social classes, I have found that there are at least four possible forms of address³: (1) the usted which represents lack of solidarity, in the traditional textbook explanation; (2) tú, (3) the usted of extreme solidarity; and (4) su merced, which also indicates extreme solidarity. That is to say that the Spanish of Bogotá 'is the way it is because it is used with certain specific objectives'.⁴ One of the objectives of Bogotá Spanish is the appropriate address of the interlocutor from a sociocultural point of view.

FUNCTIONAL STUDIES OF SPANISH PHONOLOGY

The perception of /s/ and /n/

There have been a number of functional studies of phonological phenomena in Spanish, some of which suggest that when a phonological contrast is lost, that contrast is maintained in some other part of the phonological component of the language. For example, it has often been noted that the sounds represented by the letters "-s" (or "-z") and "-n" (or "-m") in syllable-final and word-final positions are weakened or deleted in many varieties of Spanish. Previous studies⁵ of weakening and deletion of /s/ and /n/ have encountered various phonetic modifications which, it is often claimed, maintain the grammatical or semantic distinctions signaled by the phonetic sibilant [s] or the nasal [n] in other varieties of Spanish. It has been stated that weakening of /s/ can result in: (1) aspiration (libros → [lɪbroh]) or deletion (libros → [lɪbro]); (2) a glottal stop ([káʔta] casta 'caste'); (3) gemination of the following consonant ([oβɪppo] obispo 'bishop'); (4) opening of the preceding vowel ([be] vez 'instance' or ves 'you see'); or (5) lengthening of the preceding vowel ([pe:kádo] pescado 'fish'). It has been shown that /n/ can be pronounced as: (1) a velar nasal ([baŋ] van 'they go'); or (2) deletion of the nasal consonant with concomitant nasalization of the preceding vowel (van → [bã] 'they go').

In word-final position, /s/ is a plural marker for nouns and adjectives (casa grande 'large house' vs. casas grandes 'large houses') and /n/ is a plural marker for verbs in the third person in all tenses except the preterite (viene 'he comes' vs. vienen 'they come'). Word-final /s/ is also the marker for second-person singular verbs in all tenses except the preterite (viene 'he comes' vs. vienes 'you come'). Thus, the phonemes /s/ and /n/ are markers of important grammatical distinctions. These sounds are also markers of semantic distinctions (pescado 'fish' vs. pecado

³For a more detailed discussion of these forms of address, see Uber (1985).

⁴See Elizaincín's (1990) general study of the functional point of view. Translation mine.

⁵For a complete discussion of previous studies of weakening and deletion of /s/ and /n/ in all varieties of Spanish in which these phenomena have been noted, see chapter II of Uber (1981).

'sin'; vez 'instance' vs. ve 'he/she/it sees'; mente 'mind' vs. mete 'he/she/it inserts'). Therefore, it is important to investigate both the production and the perception of these sounds by native speakers of the varieties of Spanish in which these sounds are weakened or deleted. Deletion and weakening of /s/ and /n/ could cause perceptual problems for listeners, given that the distinctions outlined above would be phonetically identical (in the case of deletion) or very similar (in the case of weakening).

In a study of the perception and production of syllable-final and word-final /s/ and /n/ in Puerto Rican Spanish (Über 1980), I analyzed twenty recorded interviews conducted with native speakers of the Spanish of San Juan. Examples of weakening and deletion of /s/ and /n/, which could cause perceptual problems if they were heard out of context, were re-recorded onto a demonstration tape. This tape was played for 96 native speakers of Puerto Rican Spanish, who were asked to fill in an answer sheet of forced-choice responses. For example, the subjects heard [mi profesórah], with weak aspiration at the end of the second word, and were to choose between A. mi profesora (a singular noun phrase) and B. mis profesoras (a plural noun phrase) as the orthographic representation of what was heard on the recording. The context from which this utterance was taken clarifies that this is indeed a plural noun phrase: ella fue una de mis profesoras 'she was one of my professors', so that B is the message intended by the speaker.

The results indicate that not only total deletion of /s/ and /n/, but also weakened variants of /s/ and /n/ (such as the aspiration [h] in the cited example), can cause perceptual problems for listeners when the utterances are heard out of context. Thus, the morphological, syntactic, semantic and pragmatic context is very important for the perception of utterances in which /s/ and /n/ are found, regardless of their phonetic realization. In some cases, although a phonetic distinction could be heard by the researcher, this was not sufficient for the subjects to perceive the speaker's intended utterance. Indeed, in the example cited above, 92% of the subjects participating in the test marked A (the singular) as the answer, although we have seen that B (the plural) was the speaker's intended message.

There were three types of examples used in this perception test. The first type contain words in which the final /s/ was expressed as a sibilant [s] and the final /n/ was expressed as a nasal, either alveolar [n] or velar [ŋ].⁶ All of these examples were perceived correctly by more than 80% of the subjects.

The second type of examples involve words without final /s/ or /n/, neither phonetically nor orthographically (in most cases, singulars). All of these were also perceived correctly by more than 80% of the subjects, although not as well as those of the first type. This finding indicates that it must be easier to perceive an /s/ or an /n/ than to be certain that an /s/ or /n/ is not present.

⁶Über (1981) shows that the velar nasal does not represent a weakened variant of /n/, given that the vast majority of the subjects perceived it correctly during the perception test.

The third type of examples contain orthographic final /s/ or /n/ which is not expressed phonetically as a sibilant [s] or as a nasal [n] or [ŋ]. The instances of /s/ were aspirated or deleted, and the instances of /n/ were deleted. As one might expect, these were the examples which were perceived correctly by the lowest percentage of the subjects.

It can be seen from this discussion that phonetic information alone is not sufficient for the correct perception of utterances which involve deletion or weakening of final /s/ or /n/. It has been shown that the context, whether morphological, syntactic, semantic or pragmatic, must provide the cue for the perception of the speaker's intended message in some cases.

In the same article (Uber 1980), I compared perception and production of final /s/ and /n/ for one informant who served as a subject for the perception test as well as an informant for a recorded interview. This informant produced in the interview many phonetic realizations which were very similar to those found on the demonstration tape for the perception test. Therefore, she was judging phonetic realizations from Puerto Rican Spanish which were not different from her own pronunciation. However, she had perceptual problems with those same stimuli, which shows again the importance of context in the perception of utterances involving weakened and deleted final /s/ and /n/. Although this informant herself weakens and deletes these sounds, she perceives incorrectly many similar utterances when they are heard out of context.

Another factor of importance for the perception of these sounds is the acoustic conditions present when everyday speech is used. Many studies of experimental phonetics utilize speech recorded in a soundproof room, so that there will be minimal outside interference. But the reality is that in most cases, we do not use language under these optimal acoustic conditions. The recordings used for the perception test have considerable background noise, and in the classrooms in which the test was administered, windows and doors were open. These conditions are similar to the conditions of usage of everyday speech. For example, two Puerto Ricans, riding in an automobile on a city street with music playing and windows open, can certainly understand each other, and, of course, can distinguish singular from plural. Why is this the case, if the majority of the instances of /s/ are not pronounced, and furthermore, if aspiration (the [h] sound) is not sufficient to convey plurality in many cases? We will examine this issue in the next section.

Pluralization in the noun phrase

As we saw in the previous section, aspiration and deletion of /s/ in postvocalic position is a well-known phenomenon in Caribbean Spanish. When this phonological process occurs in word-final position in the noun phrase, there arises the problem of loss of plural markers (for example, la casa grande [singular] vs. las casas grandes [plural]). Given that a language is a communication system, it is not surprising that some linguists have studied the so-called 'functional hypothesis'. This hypothesis suggests that languages in general show a tendency to retain semantic information which is relevant to the communicative act. Therefore, the loss of a semantic contrast in one linguistic component implies that said contrast is maintained in another component. Various

researchers in Caribbean Spanish dialectology (Alba 1980; Flores, Myhill and Tarallo 1983; Lafford 1989; Navarro 1989; Poplack 1980 and 1984; Terrell 1979, 1987a and 1987b) have studied this notion of functionalism, using data from the loss of plural markers which occurs when word-final /s/ is deleted in the noun phrase.

In a morphological and quantitative study of this issue (Uber 1989 and 1990), I show that only a very low percentage of all the noun phrases examined, from a corpus of data of Cuban-American Spanish, are completely ambiguous with respect to plurality. These results are shown in #4 of Table 1. In these cases, all final /s/ have been deleted, and the context does not resolve the problem of ambiguity. Other studies (Alba 1980, López Morales 1979, and Hochberg 1986) also show very little ambiguity, given that the morphological, syntactic, semantic and/or pragmatic context almost always resolves the problem of phrases which are phonologically ambiguous (those in which all /s/ are deleted).

In addition, there is not a great difference between feminine and masculine noun phrases with regard to the retention of final /s/, as seen in #5 of Table 1. It can also be seen in #6 of Table 1 that there are actually more feminine noun phrases in which all plural markers are deleted. This finding is counter to the results of Flores, Myhill and Tarallo (1983), who found that deletion of nominal /s/ was more frequent for masculine nouns and determiners than for feminines. These authors propose that the /o/ of the masculine determiners (*los* 'the', *unos* 'some', *estos* 'these', *esos* 'those', and *aquellos* 'those') is now taking over as the plural marker in Philadelphia Puerto Rican Spanish, thus explaining why other plural markers in a noun phrase are deleted with greater frequency when there is a masculine determiner. The results of my study (Uber 1989 and 1990) do not support this version of the functional hypothesis, since I do not find more deletion of nominal /s/ in masculine noun phrases. Results similar to mine are found in the work of Terrell (1987a and 1987b) and Lafford (1989), who do not find differences in deletion of /s/ between masculine and feminine noun phrases. Their results show neither statistically significant nor linguistically significant differences. In fact, Terrell (1987b:315-317) postulates that although functional conditioning does not exist at the phonological level of /s/ deletion, it does apply to the morphosyntactic rule of number agreement. This morphosyntactic rule is variable, and when it does not apply, it produces the same result as the phonological deletion of /s/ in the noun phrase. Since so few noun phrases in my sample are completely ambiguous, I would agree with Terrell in that functional conditioning exists, but at the sentence and discourse level, not at the phonological level.

Therefore, my research (Uber 1980 and 1990) does not confirm the results of Flores, Myhill and Tarallo (1983), who found that the plural markers in a noun phrase were deleted with a higher frequency in the presence of a masculine determiner. In fact, my study has not found any notable difference between feminine and masculine noun phrases, with respect to deletion of nominal /s/, in any of the categories examined.

My results also conflict with those of Poplack (1980 and 1984), who finds one retained plural marker produces more retained plural markers within the noun phrase, (so that one would find -[s] -[s] -[s] in a three-word noun phrase);

	<u>feminine</u>	<u>masculine</u>
1. Total NP strings: 4790	1770	3020
2. Multi-word NPs: 2620	1112	1508
3. Redundancy: multi-word NPs in which more than one plural marker is retained	17.4% N=193 of 1112	18.8% N=284 of 1508
4. NPs which are ambiguous with respect to number	6.8% N=121 of 1770	2.0% N=60 of 3020
5. NPs in which at least one plural /s/ is retained	57.6% N=1019 of 1770	50.1% N=1514 of 3020

Concord on NP string level:

6. Multi-word NPs showing all [Ø]	30.1% N=335 of 1112	23.9% N=360 of 1508
7. Multi-word NPs showing all weakened variants	9.5% N=106 of 1112	8.8% N=133 of 1508
8. Multi-word NPs showing all [s]	0.7% N=8 of 1112	1.3% N=19 of 1508

Role of determiner:

9. Multi-word NPs in which the only retained plural marker is on determiner	27.2% N=303 of 1112	26.5% N=399 of 1508
10. NPs in which deletion is found in absence of determiner	32.5% N=575 of 1770	34.8% N=1050 of 3020

TABLE 1. RESULTS FOR THE CUBAN GROUP. (NP=NOUN PHRASE)

and that the deletion of the first plural marker produces more deletions (so that one would find $-\emptyset$ $-\emptyset$ $-\emptyset$). In my sample I have found a very low percentage of redundancy or concord within multi-word noun phrases (see #6, #7, and #8 of Table 1). The only exception is the category in which all plural markers are deleted (#6), which is probably due to the very high rate of deletion, rather than to a tendency toward concord within the noun phrase.

In my sample, there is a very low percentage of noun phrases which are ambiguous with respect to grammatical number (#4). In Uber 1984, I showed that the weakened variants of /s/ (aspiration [h] or the glottal stop [ʔ]) are so weak and difficult to perceive that native speakers of Caribbean Spanish do not utilize them to perceive plurality. However, the very low percentage of ambiguous noun phrases found in the present study, as well as in the results of Alba (1980) and López Morales (1979), confirm that the weakened variants of /s/, or the sibilant [s] itself, generally are not necessary for disambiguation.

CONCLUSION

In accordance with the functional hypothesis, languages tend to conserve those elements which contain information which is semantically relevant to the communicative act. Thus, if a semantic contrast is lost from one linguistic component, that contrast will be conserved in another component of the language. In agreement with the results of Terrell (1987a and 1987b) and Lafford (1989), this paper has supported the functional hypothesis in a global sense: Functional compensation is not found within the phonology, but some aspect of the context (morphological, syntactic, semantic and/or pragmatic) generally disambiguates those noun phrases which are phonologically ambiguous with respect to plurality. Other ambiguous noun phrases are tolerated and probably forgotten.

Similarly, Seklaoui (1989), in her study of weakening of /s/ and compensatory changes in person and number indicators in Italian, French and Spanish, suggests that the process of this linguistic change began with a phonological change (in the case of Spanish, the deletion of /s/), which was carried out for the purpose of articulatory efficiency (which includes processes of assimilation and deletion). Later, this phonological change caused a morphological compensation which resulted in reduction of redundancy and regularization of person and number markers. In Italian and eastern Andalusian Spanish, deletion of /s/ caused a phonetic modification of the preceding vowel to maintain the distinctions of person and number. In French and the Spanish of other regions, deletion of /s/ produced another type of functional compensation, the use of preposed markers, such as determiners and other contextual elements (whether they be morphological, syntactic and/or pragmatic). For example, the use of the subject pronoun *tú* as the marker of second person singular serves as the compensatory element when the /s/ is deleted from the verb ([*tú bíbe*] for *vives* 'you live'). Generally, the subject pronoun is not necessary in Spanish due to the person-number markers on the verb.

Finally, we have seen, in all the results presented in this paper, many examples of the creativity of the users of the Spanish language. Change is inevitable in everything, and, therefore, language is constantly changing. But, if the purpose of language is the communication of ideas, those ideas will have to be

communicated in an efficient manner. Therefore, if an element which is important for communication is eliminated from a language, it will be necessary to maintain that distinction in another component of the grammar of that language. Thus, the data presented here, although they do not support the purely phonological version of the functional hypothesis, certainly do support a more global type of functionalism, which assures efficient communication in the vast majority of cases.

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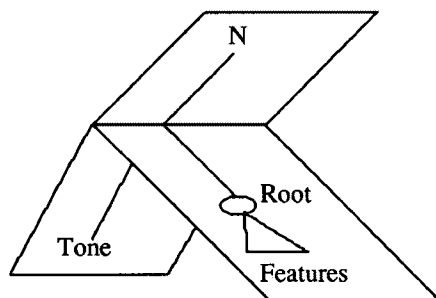
MARGI DEFINITE NOUN FORMATION AND NON-LINEAR PHONOLOGY¹

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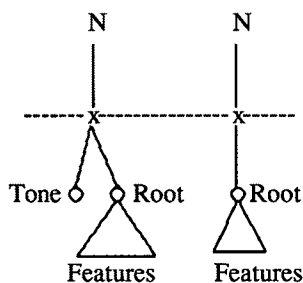
The field of non-linear phonology has made great strides in trying to find the mechanisms for sound changes in language. There are now a number of new tools that can be applied to problems in phonology. One such problem is the addition of a suffix to make the definite form of the noun in Margi, a northern Nigerian tone language (see Kenstowicz and Kisseberth 1979 p. 287 for a simplified version of the problem). By using a hierarchical representation of the features and the Obligatory Contour Principle (hereafter OCP), the complicated problem can be better understood.

Describing a non-linear phonological model is a difficult task. Picture an open book, pages riffled. The axis that lies along the spine of the book represents time. x's are placed along the time axis to represent points in time, and linked together with dashed lines. This string of connected x's is the skeletal tier of the hierarchy. The half-planes of the book's pages represent the various levels of description. One page might represent the phonetic features of a sound. Another might hold the markers that represent the nuclei of syllables (vowels). A third could represent the plane that holds the tone markers. These three planes are the concern of this paper, and can be easily represented by diagrams such as those at the bottom of the page. These diagrams provide a reasonable representation of the model. It should be noted that exactly how the various planes interrelate has not yet been fully described, and is beyond the scope of this paper.

The OCP states that "[a]t the melodic level, adjacent identical elements are prohibited" (Yip 1988 [she cites McCarthy, 1986]). The 'melodic level' in my paper is the plane that contains the nuclei of the syllables (vowels) (hereafter N). The OCP is applied in a left-to-right direction, so that when there are two adjacent nuclei, the leftmost N is deleted. Although the N is deleted, the features associated with that N may still be articulated. This can account for the formation of some long vowels, for example. The determination of which features remain is made by



3-Dimensional Representation



Flat Representation

language-specific rules.

Hoffman wrote his *A Grammar of the Margi Language* for linguists and non-linguists alike. As a result, his symbols are not strictly phonetic. For this paper I have changed Hoffman's symbols and used more phonetic ones. The lists of symbols are not complete as I have included only those for which there are examples in the data presented here. The following are charts of Hoffman's symbols followed by those used in this paper.

		<u>Consonants:</u>	
'	ʔ	m	m
b	b	n	n
c	č	ɲ	ɲ
d	d	p	p
dl	ɬ	r	r=trill
dz	dz	s	s
f	f	sh	ʃ
g	g	t	t
gy	g ^y	ts	ʈ
gh	ɣ	v	v
h	x	w	w
hy	ɣ	ʔw	ʔw
k	k	y	y
ky	k ^y	ʔy	ʔy
l	l	z	z

In addition, most consonants can be labialized (simultaneous lip-rounding) or compounded with a nasal (nasal+C). Nasals may also be syllabic.

		<u>Vowels:</u>	
i	i	ɯ	ɨ
		ə	ə
e	ɛ		
		a	a
		o	ɔ

Hoffman's ɯ (ɨ) is the word-final allophone of ə and is the vowel that is pertinent to this paper.

The vowels can be described as follows:

- i A close front vowel
- ɨ A centralized close vowel without lip rounding
- u A close back vowel with lip rounding
- ɛ A half-open front vowel
- a An open front vowel
- ɔ A half-open back vowel

"...vowels in Margi seem to be of a medium length, neither extremely short nor extremely long...no minimal pairs with an opposition short vowel:long vowel were found" (Hoffman 1963).

Hoffman found 3 allowable diphthongs: ai, au (both of which may vary in pronunciation), and ia. In addition, ʔi is an allophone of ʔy, and ʔu is an allophone of ʔw.

Tones:

There are 4 tones in Margi:

ˊ is high-level

ˋ is low-level

ˊˋ is a tone falling from high to low (very rare)

ˊˊ is a tone rising from low to high (but not as high as previous high)

All syllabic elements may carry tone (including vowels and syllabic nasals).

The tones cannot be fully explained in this paper. Those noun stems ending in i, i, u, and a "usually take[s] the high tone of the suffix. Monosyllabic nouns with a low tone sometimes retain their own low tone in addition, so that a rising tone is heard" (Hoffman 1963). For stems ending in e or o and a final tone that is high, when the suffix is added only one high tone is articulated; if the final tone is low, the tones of both the stem and suffix are kept as a rising tone.

The definite form of the noun, in Margi, is made by adding the suffix -áɾi to the noun stem. The noun stems that end in a consonant are very regular. The suffix is added directly to the stem with no change to either the suffix or the stem.

Examples include:

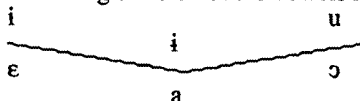
Stem	+	Suffix	=	Definite	Gloss
sál	+	áɾi	=	sáláɾi	'man'
kùm	+	áɾi	=	kùmáɾi	'meat'
tún	+	áɾi	=	túnáɾi	'abscess'
bóŋ	+	áɾi	=	bóŋáɾi	'a big gourd'
ndár	+	áɾi	=	ndáráɾi	'word'

There are two examples that do not seem to fit the pattern:

tólám	+	áɾi	=	tólamáɾi	'horn'
ʔódikùr	+	áɾi	=	ʔódikuráɾi	'majority'

Hoffman offers no explanation for the deletion in the first example ('horn') or the tone change in the second example ('majority'). The deletion in the first example also appears in the formation of the genitive (tólám + -á = tólámá), so it is probably not a typographical error. The tone change in the second example may be a typographical error, but without access to Hoffman's original data it cannot be substantiated.

The complications in the problem are contained in the noun stems that end in vowels. When the definite suffix is added to a vowel-final stem, two nuclei (N) become adjacent in the structure as a result. The OCP is then applied to the left-most syllable nucleus (N). The Margi-specific applications as to which features remain is the main part of the problem. Sometimes the features of the stem's vowel are articulated, and at other times the features of the initial vowel of the suffix are articulated. There is, fortunately, a pattern as to which vowels are articulated. The following division of the vowels is proposed:



Those vowels above the division (i, i, u) are described as being close.

<u>i-Final Stems</u>					
kʷí	+	áɾi	=	kʷíáɾi	'compound'
ʔíʔí	+	áɾi	=	ʔíʔíyáɾi	'country'
tí	+	áɾi	=	tíáɾi	'mourning'

For i-final stems, when the N is deleted, the features of the vowels are not lost, but are articulated in different forms. In those cases when the vowels are

preceded by palatalized consonants (like 'compound'), the features of the *i* are too similar to the palatalization, and are not heard. When *i* is preceded by *ʔ* it is actualized as *y* (as in 'country'). When preceded by other consonants (like 'mourning'), the vowel blends with the *á* of the suffix to become the diphthong *ia*.

i-Final Stems

látá	+	ári	=	látári	'time'
yàfí	+	ári	=	yáfári	'arrow'
šílgá	+	ári	=	šílgári	'sickness'

In all cases, after the *N* is deleted, the *i* is not articulated.

u-Final Stems

kú	+	ári	=	kwári	'goat'
xù	+	ári	=	xwári	'grave'
wù	+	ári	=	wári	'tree, wood'

In all cases, after the *N* is deleted, the features of *u* are articulated as *w*. There is an interesting example where the *N* is not deleted and a *w* is inserted between the stem and the suffix:

šú	+	ári	=	šúwári	'tail'
----	---	-----	---	--------	--------

This example also adds the semi-vowel in the genitive (*šú* + *-á* = *šúwá*), but Hoffman offers no explanation for this construction.

The vowels below the division (*e*, *a*, *o*) are described as being either open or half-open. The Margi-specific rule seems to be that there is a preference for the half-open vowels to remain behind after their *N* is deleted. The features of the strong (half-open) vowels spread to the remaining *N* and block the articulation of the *á*.

e-Final Stems

šeré	+	ári	=	šeréri	'court'
pénè	+	ári	=	pénèri	'penny'
čédè	+	ári	=	čédèri	'money'

These are the first of the stems where the features of the half-open vowel are realized in preference to those of the *á* in the suffix.

a-Final Stems

fá	+	ári	=	fári	'year'
fà	+	ári	=	fári	'farm'
xà	+	ári	=	xári	'dog'

In these examples, the fact that the rightmost *á* is lost is not so obvious. "Sound systems have a tendency toward phonetic symmetry" (Pike, [1947] 1968), and I believe that this principle should be applied to this problem in order to maintain the proposed pattern of the vowels.

o-Final Stems

sóró	+	ári	=	sóróri	'rectangular mud-house'
áṅkò	+	ári	=	áṅkwári	'handcuff'
gòdò	+	ári	=	gòdóri	'a Hausa cloth'

The second example ('handcuff') is the most interesting type in the *o*-final stems. If the consonant that immediately precedes the final vowel of the stem is velar (especially [k]), then the *o* changes to a semi-vowel when the suffix is added. The best explanation that can be currently offered is that the velar consonant and the final vowel are somehow pre-linked (probably for the feature 'roundness'). It would be helpful to have more data, as the two examples ('handcuff' and 'kerchief') are of that type seem to be loanwords. The non-velar consonants behave with regularity.

This paper offers a small bit of support for the OCP and hierarchical structure. The practical application of abstract theories gives the linguist a better idea of how well a theory represents the workings of language. Theories do not explain

all of the problems in phonology, but they provide a more satisfactory explanation for the phonological processes involved in the Margi problem than the more traditional methods. It is hoped that eventually a theory will be able to explain all the workings of language. Until then, we can only improve upon our existing theories.

Data

The following is information about the definite form of the noun in Margi, and all of the examples are from Hoffman.

The definite suffix is -àrì.

Translation: 'the _____,' 'the _____ of it,' 'the _____ thereof,' etc.

Consonant-final Nouns

<u>Noun</u>	<u>Definite</u>	<u>Gloss</u>
sál	sálàrì	man
yàl	yàlàrì	sacred grove
mám̀b̀l	mám̀b̀l̀àrì	spirit
kóm	kómàrì	axe
kùm	kùmàrì	meat
óntəm	óntəmàrì	pot
àgám	àgámàrì	ram
tólóm	tólómàrì	horn
tún	túnàrì	abscess
dəvón	dəvónàrì	honey-comb
bón	bónàrì	a big gourd
gwángwán	gwángwánàrì	tin
ng̃ ^y iləŋ	ng̃ ^y iləŋàrì	root
bzór	bzóràrì	child, son
ndər	ndəràrì	word
džár	džáràrì	woman's loin-cloth
kàčákár	kàčákáràrì	sword
ʔódikùr	ʔódikùràrì	majority

Vowel-final Nouns

-i

kʏí	kʏárì	compound
tì	tìàrì	mourning
ʔími	ʔímiàrì	water, juice
ʔíŋ	ʔíŋyàrì	country
viŋ	viŋyàrì	night
màxìdì	màxìdiàrì	women
xì	xàrì	leg

-i

sì	sàrì	thing
látí	látàrì	time
bikì	bikàrì	sin
yáfí	yáfàrì	arrow
šílgí	šílgàrì	sickness
mèlmì	mèlmàrì	village
úŋwámí	úŋwámìàrì	pumpkin

-u

kú	kwàrì	goat
ŋú	ŋwàrì	mountain
xù	xwàrì	grave
wù	wàrì	tree, wood

pčú	pčwàrì	red monkey
tágú	tágwàrì	horse
làgù	làgwàrì	way, road
mírʔù	mírʔwàrì	porridge
úʔú	úʔwàrì	money
úʔù	úʔwàrì	fire
gáyáu	gáyawàrì	Azizia africana
gàmbíyàu	gàmbíyawàrì	koko yam
šú	šúwàrì	tail
kʔèkʔé	kʔèkʔérì	-ɛ
šeré	šerérì	bicycle
čédè	čédèrì	court
pénè	pénèrì	money
		penny
fá	fàrì	-a
fà	fàrì	year
xà	xàrì	farm
mólá	mólàrì	dog
màlà	màlárì	well
ónčálá	ónčàlárì	woman (female)
ɲwà	ɲwàrì	calabash
ùʔwà	ùʔwàrì	face
		breast
àdíkò	àdíkwarì	-ɔ
áɲkò	áɲkwàrì	kerchief
gòdò	gòdòrì	handcuff
sóró	sórórì	a Hausa cloth
tóró	tórórì	rectangular mud house
		threepence

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ENDNOTE

¹All Margi data are from Hoffman, The hierarchical feature representation and the OCP used in this paper are as the author understand the information provided by Sagey and Yip. The only source not mentioned above (for the open-book model, among other things) was the in-class lecture materials provided in an advanced phonology class taught by Dr. Bernard Tranel to whom much debt is owed.

FIVE UNDERLYING VOWELS IN BOLOGNESE: EVIDENCE FROM METAPHONY

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1. Introduction

This research examines the tonic vowels and metaphony in the dialect of Bologna¹. Although there are six long vowels [i:, e:, æ:, a:, o:, u:] which surface in this dialect, and five short vowels which surface [e, æ, a, α, o], this analysis demonstrates that they can be derived from a system of five underlying vowels; /i, e, a, o, u/. Table 1. provides examples of metaphony. There are six tonic vowel alternations observed: 1) [æ:] alternates with [i:], 2) [æ] alternates with [e], 3) [o:] alternates with [u:], 4) [α] alternates with [o], 5) [æj] alternates with [i:], and 6) [αw] alternates with [u:]. It will be shown that only the underlying mid vowels, /e/ and /o/, participate in the metaphonic alternations.

Table 1. Metaphony

a) Class of Masculine Nouns

Type A			Type B		
sg.	pl.	gloss	sg.	pl.	gloss
al mæjz	i mí:z	'month'	l añæ:l	j añí:	'ring'
al pæjl	i pí:l	'hair'	al fradæ:l	i fradí:	'brother'
al fjáwr	i fjú:r	'flower'	al kapæ:l	i kapí:	'hair'
l ó:rgen	j ú:rgen	'organ'	al kurtæ:l	i kurtí:	'knife'
al biskó:t	i biskú:t	'biscuit'	al fazó:l	i fazú:	'bean'
al djalætt	i djalétt	'dialect'	al piró:l	i pirú:	'stairway'
al dæŋt	i dént	'tooth'	al lintó:l	i lintú:	'sheet'
al stæmg	i stómg	'stomach'	al luzñó:l	i luznú:	'nightingale'

b) Class of Adjectives and Nouns with Two Gender Forms

m. sg.	m. pl.	f. sg.	f. pl.	gloss
næjger	ní:ger	næjgra	næjgri	'black'
famαwz	famú:z	famαwza	famαwzi	'famous'
mó:rt	mú:rt	mó:rta	mó:rti	'dead'
frædd	frédd	frædda	fræddi	'cold'

2. Analysis

First, there will be a consideration of the underlying vowels, followed by a review of Saunders' (1984) analysis of metaphony and a new proposal for metaphony based on the analysis of five underlying vowels for Bolognese.

2.1. The Underlying vowels

The six long vowels and diphthongs and the five short vowels in atonic position reduce to [i], [e], [a] and [u] ([o] is sometimes found). Table 2.

outlines the reduction of vowels in atonic position, which shows that: 1) long [i:] and short [e] become [i], 2) long [u:] and short [o] and [α] become [u], 3) long [e:], short [æ] and sometimes long [æ:] become [e], 4) sometimes long [æ:] becomes [a], as do long [a:] and short [a], and 5) long [o:] becomes [u], with a variant [o] at times.

Table 2. Tonic Vowel Reduction

a) Examples

- i) [i:] and [e] become [i] when atonic:
baréll 'barrel' vs. barilén 'little barrel'
a mí:r 'I aim' vs. miræ:r 'to aim'
- ii) [u:], [o], and [α] become [u] when atonic:
mizú:ra 'measure' vs. mizurén 'little measure'
fómm 'smoke' vs. fumadáwr 'smoker'
gátt 'drop' vs. gutlén 'little drop'
- iii) [e:], [æ], [æj], and sometimes [æ:] become [e] when atonic:
asé:di 'siege' vs. asediæ:r 'to besiege'
a ráññ 'I reign' vs. reñæ:r 'to reign'
kliæjnt 'client' vs. klientéla 'clientele'
perfæ:t 'perfect' vs. perfetjáη 'perfection'
- iv) [a:], [a], and sometimes [æ:] become [a] when atonic:
guadá:n 'earnings' vs. guadañæ:r 'to earn'
garánt 'guarantor' vs. garantí:r 'to guarantee'
pdæ:na 'platform' vs. pdanéηa 'little platform'
- v) [o:] and [αw] become [u] or some times [o] when atonic:
devó:t 'devout' vs. devotjáη or devutjáη 'devotion'
guláwz 'greedy' vs. gulozitæ: or guluzitæ: 'greediness'

b) Tonic and Atonic Vowel Correspondences

stressed	i: e	e: æ æ:	æ: a: a	o:	α o u:
	\ /	\ /	\ /	Λ	\ /
unstressed	i	e	a	o u	u

It has already been pointed out that there are two kinds of vowels in Bolognese; long and short. Table 3. supplies the relative degree of height and backness for each set of vowels.

Table 3. Long and Short Vowels

a) Long Vowels

i:	u:
e:	o:
æ:	
a:	

b) Short Vowels

e	o
æ	α
a	

If long [æ:] is ignored for the moment, two sets of vowels with five vowels each are created. The correspondences between tonic and atonic vowels in Table 2b. suggest an underlying vocalism of five vowels. The features to distinguish the five vowels are as shown in Table 4. below. These features are based on my revision of a theory of underspecification as

proposed by Goldsmith (1987)². These five vowels are then doubled by the distinction of long and short vowels. Long vowels link to two V's on the CV tier, while short vowels link to only one. Table 5. shows this.

If the long and short vowels proposed as the underlying vowels of Bolognese in Table 5. are compared to the actual surface vowels, as given in Table 3., then it is observed that the short vowels that surface are lower than underlying short vowels (except for /a/ and [a]), and that while there are five underlying long vowels (/i:, e:, a:, o:, u:/) there are six surface long vowels ([i:, e:, æ:, a:, o:, u:]) suggesting that the long vowel [æ:] is an allophone of one or more vowels. Table 6. makes these comparisons.

The question that now arises is how are the surface vowels obtained from the underlying vowels. A brief discussion will be given first to the short vowels, followed by one to the long vowels.

Table 4. Underlying Vowel Features

high ³ V -back ⁴	V -back	low V	V +back	high V +back
/i/	/e/	/a/	/o/	/u/

Table 5. Long and Short Vowels

i ^ VV	i V	e ^ VV	e V	a ^ VV	a V	o V	o ^ VV	u V	u ^ VV
/i:/	/i/	/e:/	/e/	/a:/	/a/	/o/	/o:/	/u/	/u:/

Table 6. Underlying and Surface Vowels Compared

(a) Short Vowels

underlying	i	e	a	o	u
surface	e	æ	a	α	o

(b) Long Vowels

underlying	i:	e:	a:	o:	u:	
surface	i:	e:	æ:	a:	o:	u:

2.1.1. Short Vowels

In the case of short vowels, it seems that they have lowered one step. That is, short underlying /i/ is realized as [e], and short underlying /u/ is realized as [o], etc. A rule of lowering short vowels is given in Rule 1.

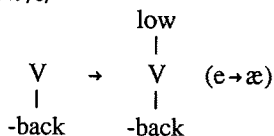
Rule 1. Short Vowel Lowering

$$V \rightarrow \begin{array}{c} \text{low} \\ | \\ V^5 \end{array}$$

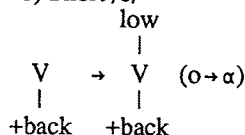
Applying this rule to short /e/ and /o/ readily produces the desired surface vowels [æ] and [α]. Table 7. provides derivations for these vowels.

Table 7. Derivations of Short /e/ and /o/

a) Short /e/



b) Short /o/



The diphthongs [æj] and [αw] can also be derived from short vowel lowering. The underlying diphthongs are /ej/ and /ow/, consisting of a short vowel and a glide. Just as the short vowels /e/ and /o/ of Table 7. are lowered by Rule 1., so are the short vowels of the diphthongs lowered.

Applying Rule 1. to the short high vowels /i/ and /u/ at first seems to create a problem since both the feature [low] and [high] are associated to the same vowel. A rule which disassociates both features to resolve the conflict can be written as in Rule 2. Table 8. supplies derivations

Rule 2. Disassociate Conflicting [High] and [Low]

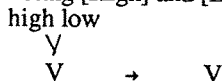
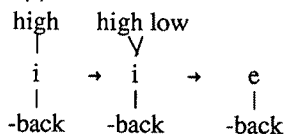
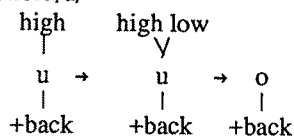


Table 8. Derivation of High Short Vowels

a) Short /i/



b) Short /u/



2.1.2. Long Vowels

In general the surface long vowels are derived from merely the underlying vowels without the application of any rule. It must be remembered, however, that surface [æ:] needs an explanation, since there is not an underlying long /æ:/.

Basically there are two sources for long [æ:]: 1) an underlying /a/ and 2) an underlying /e/. there are two points of evidence that support this claim. First, data show that some times [æ:] reduced to [e] when atonic (*perfæ:t* 'perfect' vs. *perfetjǎn* 'perfection'), while other times tonic [æ:] may reduce to [a] when atonic (*pdæ:na* 'platform' vs. *pdanéhna* 'little platform'). Therefore, the cases in which tonic [æ:] alternates with atonic [e] it is reasonable to assume that the tonic [æ:] is an underlying /e/, while in those cases in which tonic [æ:] alternates with atonic [a] it is a manifestation of an underlying /a/.

Second, there are examples of metaphony, in which a masculine noun with tonic [æ:] in the singular has [i:] in the plural (*spæ:č* 'mirror' vs. *spí:č* 'mirrors'), while there are examples in which tonic [æ:] remains unchanged

in the plural (næ:z 'nose(s)', which has a form nazón 'big nose'). Thus, the cases in which [æ:] enters into metaphonic alternations are manifestations of an underlying /e/, while cases in which [æ:] does not change due to metaphony are the result of an underlying /a/.

From the previous two discussions on short and then long vowels it has been shown that while underlying /i/, /u/, and /o/ have two manifestations each ([e], [o], and [α] respectively when short and [i:], [u:] and [o:] respectively when long), underlying /e/ and /a/ have three manifestations ([e:], [æ], and [æ:] for underlying /e/, and [a], [a:], and [æ:] for underlying /a/). The following two sections will consider the factors that determine which of the three will surface for first /a/ and then /e/.

2.1.3. The Surface Realizations of /a/

The three realizations of an underlying /a/ are: [æ:], [a:], and [a]. If it is assumed that long [a:] is merely the reflection of an underlying long /a:/ and that short [a] is the reflection of an underlying short /a/, the question that remains is whether long [æ:] comes from an underlying short or long /a/.

The answer to the above question is found by first considering the fact that short [a] surfaces in a very limited context; only when followed by a tautosyllabic nasal (bjánk, mán). Short [a] also alternates with long [æ:] (italján 'Italian' m.sg. vs. italjæ:na 'Italian' f.sg., and sán 'healty' m.sg. vs. sæ:na 'healty'f.sg.). Since long [æ:] may alternate with short [a], and short [a] has been assumed to derive from an underlying short /a/, the conclusion is that long [æ:] also is a surface realization of an underlying short /a/. Given the limited environment of surface short [a], an underlying short /a/ is changed to long [æ:] except when followed by a tautosyllabic nasal. Table 9. reviews the possible surface realizations of long and short /a/. Table 10. gives sample derivations of words with underlying long and short /a/, taking into account the elsewhere rule (Rule 3) given in Table 9.

Table 9. Surface Realizations of Underlying Long and Short /a/

(a) Short /a/	@	(b) Long /a:/
	^	/a:/ → [a:]
(i) /a/ → [a] / _____η		
(ii) /a/ → [æ:] elsewhere (Rule 3.)		

Table 10. Derivations of Long and Short /a/

UR	sán	sána	italján	italjána	á:n	fá:t
Rule 3.	Ø	sæ:na	Ø	italjæ:na	Ø	Ø
Derivation ⁶	sán	sæ:na	italján	italjæ:na	á:n	fá:t

2.1.4. The Surface Realizations of /e/

The surface realizations of /e/ are [e:], [æ] and [æ:]. At first it will be assumed that long [e:] is a reflex of an underlying long /e:/ and that short [æ] is the result of an underlying short /e/ after the application of Rule 1., which lowers short vowels. The question, now, is whether long [æ:] is the result of an underlying long or short /e/. A possible approach would be to say that long [æ:] is the result of an underlying short /e/. First, short /e/ is lowered to [æ] according to Rule 1., and then the short [æ] is lengthened because of

some other subsequent rule. Another approach is to assume that long [æ:] is the result of an underlying long /e:/, and that it is subsequently lowered.

If it is assumed that [æ:] is the result of underlying short /e/, it can be shown that short [æ] surfaces only when followed by a tautosyllabic nasal or geminate consonants (djalætt 'dialect', cavalætt 'small horse', sækk 'dry', mæss 'messenger', dænt 'tooth', and parænt 'relative'), while long [æ:] surfaces elsewhere (difæ:t 'defect', infæ:t 'infection', bæ:k 'beak', fæ:sta 'party'). Table 11. reviews the realizations of underlying /e/ according to this approach, which will be referred to as Analysis I. Table 12 provides example derivations.

Table 11. Surface Realizations of /e/ According to Analysis I

(a) Short /e/	(b) Long /e:/
(i) /e/ → [æ] (Rule 1., lower short vowels)	/e:/ → [e:]
@ ^	
(ii) [æ] → [æ] / _____ {C ₁ ^η C ₁ }	
(iii) [æ] → [æ:] / elsewhere (Rule 4.)	

Table 12. Analysis I Derivations of Underlying Long and Short /e/

UR	bék	mæss	gré:k
Rule 1	bæk	mæss	Ø
Rule 4.	bæ:k	Ø	Ø
Derivation	bæ:k	mæss	gré:k

If it is assumed that long [æ:] is derived from an underlying long /e:/, it can be said that all underlying long /e:/ do surface as long [æ:], and that surface long [e:] is derived (not from underlying long /e:/ but) from short /e/. Thus, underlying short /e/ remains short when followed by a geminate consonant or tautosyllabic nasal, but is lengthened elsewhere. This will be called Analysis II. Table 13. reviews the surface realizations of underlying /e/ according to Analysis II, while Table 14. provides derivations.

Table 13. Surface Realizations of /e/ According to Analysis II

(a) Short /e/	(b) Long /e:/
@ ^	
(i) /e/ → [e] / _____ {C ₁ ^η C ₁ } (Then short vowels can lower)	/e:/ → [æ:] (Rule 5.)
(ii) /e/ → [e:] / elsewhere (Rule 6.)	

Table 14. Analysis II Derivations of Underlying Long and Short /e/

UR	bé:k	mæss	grék
Rule 5. /e:/ → [æ:]	bæ:k	Ø	Ø
Rule 6. /e/ → [e:] / elsewhere	Ø	Ø	gré:k
Rule 1. Short Vowel Lowers	Ø	mæss	Ø
Derivation	bæ:k	mæss	gré:k

Although Analysis I may seem more attractive because it requires fewer rules, in the next section, 2.2., that considers metaphony, it will be seen that Analysis II is actually better since the first approach makes incorrect predictions about metaphony. Also, the first approach must merely stipulate that underlying long /e:/ does not participate in metaphony, while the second approach begins to offer a reason why surface long [e:] does not.

To summarize the surface manifestations of underlying vowels, it has been suggested that: 1) underlying /i/ surfaces as [i:] when long and [e] when short, 2) underlying /u/ is [u:] when long and [o] when short, 3) underlying /o/ is [o:] when long and [α] when short, 4) underlying /e/ is [æ:] when long and [æ] when short and followed by a geminate consonant or a tautosyllabic nasal, but [e:] elsewhere (according to Analysis II), and 5) underlying /a/ is [a:] when long, [a] when short and followed by a tautosyllabic nasal, but [æ:] when short elsewhere.

2.2. Metaphony

Table 15. reviews the alternations of tonic vowels. Although Saunders (1984:225-226) observes that a single operation might be invoked to characterize this phenomenon - that of vowel raising - she prefers to speak of plural formation as involving vowel substitution. Basically Saunders' (1984:226) rule says that in the plural of masculine nouns "the stressed vowel of the singular is replaced by a high vowel, if the original is [+ long], or by a mid high vowel (i.e., [- low, + high]), if the original is [- long]."

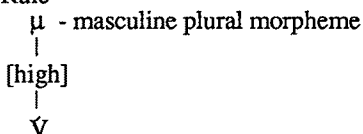
Table 15. Metaphonic Alternations

m. sg. tonic vowel	m. pl. tonic vowel
æ:	i:
æ	e
æj	i:
o:	u:
α	o
αw	u:

Saunders' rule has three deficiencies: 1) the short vowels do not become [- low, + high] (i.e., [i] and [u]), but rather [e] and [o] ([- low, - high]), 2) it is not clear how the diphthongs [æj] and [αw] fit into this schema (unless Saunders considers them to be merely long vowels) and 3) vowel raising seems to be at the heart of this phenomenon and not merely vowel substitution, so that this rule does not explain why other vowels do not undergo any kind of vowel substitution.

I propose a rule that adds the feature [high] to the tonic vowel of the masculine plural. In other words, the morpheme for the masculine plural is specified by the suprasegmental feature [high]. This is formalized in Rule 7.

Rule 7. Autosegmental Metaphony Rule



Feminine nouns and adjectives never undergo metaphony nor do masculine nouns and adjectives with underlying tonic vowels of /a/, /i/ or /u/ (whether long or short). The metaphony rule, Rule 7., is unable to apply to these vowels since: 1) /i/ and /u/ are already high and therefore the addition of the feature [high] would have no effect, and 2) the addition of the feature [high] is blocked from associating to an underlying /a/. The blocking of Rule 7. to underlying /a/ could be explained for two reasons: 1) underlying /a/ is already marked as [low] and the features [high] and [low] combined create a conflict, and 2) the feature [high] can only be linked to vowels which are specified for [$\pm$ back]. An underlying /a/ does not have the feature [$\pm$ back] (see Table 4.). Archangeli & Pulleyblank (1986:23) call this a c-constraint.

Having explained why metaphony does not apply to the underlying high vowels /i/ and /u/, nor to the underlying low vowel /a/, this leaves only the mid vowels /e/ and /o/, and the diphthongs to consider. First an application of metaphony Rule 7. to the short mid vowels and the diphthongs will be presented. The diphthongs, /ej/ and /ow/, have been included with the short vowels since they have been analyzed as being short mid vowels followed by a glide. Then long mid vowels and metaphony will be considered.

2.2.1. Metaphony and the Short Mid Vowels and the Diphthongs

Table 16. provides example derivations of metaphony Rule 7. applied to short mid vowels and diphthongs. The form *mess* 'messenger' is chosen to represent words with short /e/ since according to both analyses in section 2.1.4., it would have an underlying short /e/. Section 2.2.2., which considers metaphony and the long vowels will take up again the problem of Analysis I and II of underlying /e/.

In Table 16. the diphthongs do not undergo short vowel lowering. Although they began as a short mid vowel plus a glide, after metaphony applies to them, the short high vowel and the following glide are interpreted as a long high vowel, to which short vowel lowering cannot apply.

Table 16. Metaphony applied to Short Mid Vowels

UR	mess	pont	mejz	fjowr
Rule 7. Metaphony	miss	punt	mijz	fjuwr
Rules 1 & 2. Short Vowel Lowers	mess	pont	Ø	Ø
Derivation	mess	pont	mi:z	fju:r

2.2.2. Metaphony and the Long Mid Vowels

Table 17 provides an example derivation of long /o:/ undergoing metaphony. In section 2.1.4. two analyses were proposed to produce the surface long [æ:] from an underlying /e/. In Analysis I, long [æ:] is derived from a short /e/, and long [e:] is derived from a long /e:/. Since surface long [e:] does not participate in metaphony, Analysis I must stipulate that underlying long /e:/ is simply exempt from it. There seems to be no motivation for this requirement. But, this is not the only problem that Analysis I presents for metaphony. Table 18. illustrates that incorrect derivations are predicted from Analysis I. Thus, the incorrect form **bék* is predicted from Analysis I, instead of the attested plural form *bí:k*.

Table 19. illustrates that correct predictions are made by Analysis II with regards to metaphony. Analysis II derived long [æ:] from an underlying long /e:/, so this analysis does not have to make the strange claim that underlying

long /e:/ is excluded from the metaphony process. Table 19. also includes a derivation for a word to which Analysis II requires an underlying short /e/.

While Analysis I of underlying /e/ could not explain why surface long [e:] does not participate in metaphonic alternations, Analysis II supplies at least what may be considered a partial answer. It will be recalled that according to Analysis II, surface long [e:] is derived from a short /e/ that is not followed by a geminate consonant nor a tautosyllabic nasal. Table 20. supplies a derivation of a short /e/ in this position in connection with the application of metaphony. Although the derivation is incorrect, it is seen that a surface long [e:] is predicted to alternate with a short [e] under conditions of metaphony. The alternation between [e:] and [e], as predicted by the application of metaphony and Analysis II, does not reflect the raising pattern of metaphony, which is generalized in this dialect. Thus, surface long [e:] does not participate in metaphony because the forms predicted run contrary to the generalized tendency to raise the metaphonized vowel in height

Table 17. Long /o:/ and Metaphony

	sg.	pl.
UR	bisko:t	bisko:t
Rule 7. Metaphony	Ø	bisku:t
Derivation	bisko:t	bisku:t

Table 18. Incorrect Derivation of Metaphony From Analysis I

	sg.	pl.
UR	bek	bek
Rule 7. Metaphony	Ø	bik
Rules 1 & 2. Short Vowel Lowerers	bæk	bek
Rule 4. [æ] → [æ:]	bæ:k	Ø
Derivation	bæ:k	*bék

Table 19. Correct Derivation of Metaphony From Analysis II

	sg.	pl.	sg.	pl.
UR	be:k	be:k	mess	mess
Rule 7. Metaphony	Ø	bi:k	Ø	miss
Rule 5. /e:/ → [æ:]	bæ:k	Ø	Ø	Ø
Rules 1 & 2. Short Vowel Lowerers	Ø	Ø	mæss	mess
Derivation	bæ:k	bi:k	mæss	mess

Table 20. Derivation of Short /e/ with Application of Metaphony

	sg.	pl.
UR	grek	grek
Rule 7. Metaphony	Ø	grik
Rule 6. /e/ → [e:]	gre:k	Ø
Rule 1. Short Vowel Lowerers	Ø	grek
Derivation	gre:k	*grek

3. Summary

This study has demonstrated that the canonical five vowel, three heights system /i, e, a, o, u/ is doubled, so that there is a set of long vowels and a set of short ones. Only the mid vowels /e/ and /o/ undergo metaphony, whether long or short. Metaphony has been shown to be the result of vowel raising

due to the masculine plural morpheme, which is specified by the suprasegmental feature [high]. This approach to metaphony is simpler than the vowel substitution proposed by Saunders (1984), since it accurately explains the vowel raising and subsumes it under one process. It also better demonstrates how diphthongs produce long high vowels when metaphonized, and defines why vowels other than /e/ and /o/ are unable to undergo metaphony, which Saunders' (1984) substitution rule does not. Since metaphony is defined as adding the feature [high] to the tonic vowel, this feature cannot change the high vowels /i/ and /u/, being already high, and /a/ is not changed by metaphony since [high] is blocked from attaching to it.

NOTES

¹The data for this analysis were obtained, for the most part, from Saunders' (1984) article, although Mainoldi (1967), Coco (1971) and Ungarelli (1901) were also consulted (which are the sources of Saunders' data). The transcription for the data is a combination of the way they are given in Mainoldi (1967) and Ungarelli (1901), and not as transcribed by Saunders (1984). Saunders considered her forms to be underlying and dropped double consonants, so that *frædd* is transcribed as *fræd*. Also the long [æ:] was written as [ĩ:] by Mainoldi and Saunders, but as [æ] by Ungarelli who explained that it was a long vowel. Ungarelli, however, transcribed short [æ] as [e_a], which Mainoldi transcribed as [a] and Saunders transcribed as [æ].

²See Kaze (1989:39-45)

³The need for the feature [high] will be seen in the discussion of metaphony.

⁴[± back] is used instead of [± round] since [α] is not a rounded vowel. Archangeli (1989) discusses the problem of the choice between [± back] and [± round] in underspecification theory. The redundant feature [+ round] must be added to all non low back vowels late in the derivation.

⁵It must be remembered that a single V represents a short vowel, while VV represents a long vowel. Only short vowels are changed by this rule.

⁶A rule which makes a nasal velar when it closes a syllable with a short vowel is not represented here.

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WHACK! PIFF! SPRONG! :

AN ANALYSIS OF ONOMATOPOEIC WORDS IN CARTOONS

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Onomatopoeia, the process of imitating or echoing sounds from the environment, is an active means of creating vocabulary. Indeed, it is the one instance when the relationship between sound and signified is not arbitrary. The word, onomatopoeia, from the Greek, means the creation of names. These words may represent the sound itself, as in whack, or may represent the object that produces the sound, as in cuckoo. Because the proportionate number of words thus created is small, and because of the non-arbitrariness of their creation, echoism is rarely used in etymologies. Jespersen (1922:313) quotes Diez as saying, "One can easily go too far in supporting onomatopoeia: as a rule it is advisable to build [etymologies] on existing words." Yet the ancient Greeks of the naturalist school of Cratylus and the Stoics believed in a natural relationship between sound and meaning. They proposed an origin of language in which the nuclear vocabulary was composed of onomatopoeic creations. Of course, these original words were mere imitations of the sounds since the human vocal apparatus is unable to reproduce sounds as a tape recorder does. During the eighteenth century this philosophy was revived. Jean Jacques Rousseau wrote in his book, The Origin of Language, "Most of the root words would be imitative sounds or accents or passion or effects of sense objects. It would contain many onomatopoeic expressions" (see Freemantle 1974:155).

Interjections, as representative of articulations of feeling, were considered primary causes of onomatopoeic words. Johann Gottfried Herder wrote in his Essay on the Origin of Language, "While still an animal, man has language. All violent sensations of his body, and among the violent, the most violent, those which cause him pain, and all strong passions of his soul express themselves directly in screams, in sounds, in wild inarticulate tones" (see Freemantle 1974:159). These natural human interjections were imitated. "In this way we get some of our conventional interjections. 'OO' is often heard as an expression for pleasant sensation, but seems not to have got in the dictionaries. 'O' is an interjection for surprise, and 'ow' and 'ouch' for sudden pain have long had lexical treatment: so has the grunt of disgust [ugh] and the grunt of disdain [humph]" (Sturtevant 1917:128).

From the influence of the eighteenth century romanticists, three theories of language origin based on echoism became wide spread. The DING DONG theory suggested that speech gradually

evolved from this imitation of sounds in nature, in just the way that ding-dong imitates the sound of a bell. Jespersen (1922:415) quotes Max Muller as saying "A law which runs through nearly the whole of nature, that everything struck, rings. Each substance has a particular ring." A more limited theory of origin, the BOW WOW theory, concluded that language evolved from animal sounds in the natural environment. Others believed that the original sounds echoed were those of interjections. This conjecture was called the POOH POOH theory (or the OUCH OUCH theory). At this point, most eighteenth century linguists felt that this wild speculation of language origin had gone far enough. These theories were discounted because of two facts: 1) imitation accounts for very few etymologies, and 2) once existent, these sounds followed the usual historical phonetic changes in the language, thus changing the original echoic quality. As an example, Vulgar Latin pipio, imitative in origin, became pigeon through historical sound change, resulting in a sound that is not echoic. The imitations of natural sound became conventional, thus dogs are barking bow-wow or arf-arf in English, but oua-oua in French (Saussure 1959:69).

To investigate the active creation of onomatopoeic vocabulary in English, the richness of this area of the lexicon, and the extent to which lexicographers recognize these words, examples of onomatopoeia were collected from cartoons occurring in American newspapers over a three year period (1988-1990). Cartoons provide an excellent semantic source since there is a visual representation of the environment as well as a verbal context of the word. During this period, more than 1,000 instances were collected: of these, about 100 were not found in the 1989 edition of the Oxford English Dictionary. Although exclamations (oops) and interjections (pow) were particularly frequent, many words were classified as substantives (plink) and verbs (burp).

A large number of the neologisms listed in the 1989 OED but not in the 1971 edition, were Americanisms. As H.L. Mencken wrote of the American creator of slang, "He makes bold availability of onomatopoeia, as in biff, zowie, honky-tonk and wow" (Mencken 1947:555-577). Our study encountered the following Americanisms in the cartoons:

blat	honk	vroom
bong	oomph	vroom
bop	pow	wah-wah
burp	smooch	yip
frazzle	splat	zap
hee-haw	spritz	zing

Of these, hee-haw is the oldest, dating from 1815; and vroom the newest from 1967.

Another interesting etymological discovery was the large number of Scots dialect words. These were: augh, eyow, growmph, gurr, ow, spang, splat, thud and wow. Mainly nineteenth century expressions, they were probably brought over to America by the

Scots-Irish immigrants.

The OED used social labels of slang, colloquial and vulgar for some words. Slang expressions were: biff, burp, oomph and zap. Those listed as colloquial were:

bop	flump	vroom
clomp	splat	whop
fizz	splosh	zing

Certainly in American English, burp is the common expression rather than belch and is no longer slang. Whop labelled as vulgar is not truly so today. The Black dialect form, whup, was not found in the cartoons, even those portraying Black speakers.

Many onomatopoeic expressions have been in constant use since the tenth century. The cartoons yielded these forms with ten centuries of longevity:

chew	roar	tap
knock	spit	yawn
ring	stamp/stomp	

Some labelled obsolete are obviously in use today: brack, glop, glub and thuk.

The orthographical representation of onomatopoeic words is allowed a wide range where differences from the citation form may repeat consonants or vowels to show a lengthening or continuity of the sound. An example of this emphasizes the incongruity of a wealthy lady sneezing in an ordinary fashion at a high society function by the expression AAAAAAAAHHHHHHH CHOOOOOO! from The Born Loser by Art Sansom (5/14/89), or Oooowwoooooooo, the call of a wild anteater across the moonlit night from Johnny Hart's cartoon strip, B.C. Consonants can also be repeated. A table saw goes Buzz-z-z in Blondie (Dean Young & Stan Drake 9/3/89).

Often authors will use spellings that employ letters resulting in the same sound as the dictionary citation. This use of alternate letters adds to the emphasis of the sound as well as the informality of the comic strip. Some examples are:

klik	click	nok nok	knock knock
klink	clink	skrunch	scrunch
klunk	clunk	smak	smack
krash	crash	woosh	whoosh
krunch	crunch	zum	zoom

However, when authors leave out vowels completely, this causes a word that violates natural syllable structure. These are usually not considered words by lexicographers, unless the syllable can be carried by a continuant phoneme, as in grrrr.

brrr	shiver
bzzz	camel whispering to soldier in foreign legion
bzrng	rug beater attachment used on hard floor
chx	snicker of sergeant at lieutenant's picture
clk	sound made by turning a radio dial
cnch	monster sound

fbbpt	making underarm sounds
ftttttt	blowing up a balloon
fzzt	dog imitating a cat
fzzzt pzt	cigarette fizzling out because wrong end lit
grr	growl made by animals in forest
gzrrknnnhhh	reply made by person aroused from sleep
hmmm	pondering
hmp	indignation
kkrcck	penguin pulling back pin of automatic gun, pull of starter cord on chain saw, power beam striking mouse, power beam turning on
kmf	duck tugging on package ribbon
mff	eating sounds, football player trying to tackle
mmff	grunt of child trying to tackle
mmm	mumbling, good tasting food
mnf	very tired person returning a greeting
mnnnnnnnggfz	sipping cup of morning coffee
nnnggghhhh	lazy cat trying to reach remote control
nnngkgkk	child pulling mucus from his nasal cavity into mouth
phzzzt	television tube burning out
phpt	penguin giving emergency care to rat
pppbbft	balloon jetting up to ceiling
psst	seeking attention, asking for silence
rrrr	ambulance siren, growl of frustrated child, lawnmower, father pretending spoon of mush is an airplane to feed infant
rrgh	exasperated child running around in circles
rmmmmm...click	photocopy machine
sknx	man snoring
smkk	girl kissing paper
smrch	girl kissing paper
snfplk	monster sound
snkxg	man snoring
snx	snicker
thbpth, thbt, bhpft	sound of condescension
whttttt	blowing up balloon
wwch	exclamation of surprise
zzzz	snoring

In order to show the repetition of intermittent sound (rather than a continuation which is shown by the repeated vowels of consonants cited earlier), onomatopoeic words are repeated, usually two or three times. There were 51 instances of two times, 58 instances of three times. Words of more than one syllable are almost never repeated over three times. There were three

examples of monosyllabic words repeated ten or eleven times. Reduplication is a very common practice, occurring in ten per cent of the examples collected.

For some examples of reduplication, there are slight phonetic changes in the repetition of the sound:

bappity bap bap	hand drumming on tabletop
chu chung	cat getting entangled in louvres of venetian blind
clickity clak	caveman running along subway track
ding dong	door bell
flippy flip	child's feet flapping in the air, wanting to go skateboarding
nyah hah hah	sinister laugh
pat pat pat pat patta	patta patta cat accelerating
rat a tat tat	knock on door
splish splash	rain on window
sploosh splash sploosh	splash excited movement in water
ta da	human imitating trumpet fanfare proud mother showing home videos
tap tappity tap tappity	sound of dancing feet
tee hee hee	mischievous laugh
whappity wap wap wap	group of N.O.W. women tacking a sign labelled PERSON over the word MAN on a sign reading man-in-the-street.

As another means of emphasis, a prefix of ka- or ker- is sometimes employed. Perhaps these spelling originally stood for the same sound, [kə] where the /r/ spelling occurring in dialects with loss of postvocalic [r]. However, the pronunciation of /r/ nowadays may be due to a spelling pronunciation. The OED classified this intensifier as a vulgar Americanism. The two citations listed, kerplunk and kersplash were from male narratives. Most of the forms from the cartoons were not listed in the OED.

kabing	ricochet of raisin cookie off man's hand
kablooie	caveman impacting homeplate in baseball game
ka-boom	thunder
kaching	bathroom scales after heavy person steps on
kapow	tiger tackling boy, impact of snowball on person's head
kapwing	child as superhero, takes off into air
ka-toingg	bathroom scales after heavy person steps on
ka-zokk	bolt of magic from tips of witch's fingers
ka-zwak	magic lightening from genie lamp
kee-rumble	walls of house falling flat to ground
ker-clik	instamatic camera shutter
kerplunk	golfball falling into pond
ker-splash	barrel of pickles bursting
kersplat	witch crashing into ground after collision

Only one form with a ba- emphatic prefix occurred: ba-lump --

numerous overcoats falling to the floor.

Another means of emphasizing sound is using a prefix /f/ or /z/ which can prolong the fricative sound:

fwap	cat being rolled up in window shade
fwoosh	witch on broom zooming through space
fwump	release of spring loaded arm bearing cream pie into face
fwwumkmp	rocket severing the lines attaching gondola to balloon
zwak	child bashing father's hand with baseball bat
zwip	paper airplane scooping hotdog from bun
zripp	needle being grabbed off playing record

Of course, sometimes onomatopoeic words are combined creating blends. The most well-known example is chortle, coined by Lewis Carroll in his Through the Looking Glass (1872). This is a combination of snort and chuckle.

bzang	rug beater on hard floor; possibly a combination of <u>buzz</u> and <u>clang</u> .
bzrng	rug attachment on hard floor; possibly a combination of <u>buzz</u> and <u>ring</u> .
flump	numerous overcoats falling to the floor; probably a blend of <u>flop</u> and <u>lump</u> .
skrink	sound of potato chip bag when pulled open; perhaps a blend of <u>screech</u> and <u>crinkle</u> .
splang	impact of coconut on bunch of bananas; a blend of <u>splat</u> and <u>bang</u> ..

Historically there have evolved pairs of words beginning with /cr-/ and /scr-/. The OED states: it is probable that the existence of many pairs of synonyms with scr- and cr- produced a tendency to change cr in words expressive of sounds or physical movements into scr- so as to render the word echoic or phonetically symbolic." Examples given in the OED were cramble/ scramble, creak/ scream/ crunch/ scrunch and others. In the cartoons were found: scrunch, scroonch, and skrunch.

There exist quite a few echoic words that are similar to others, perhaps only differing in the quality of the vowel sound such as bing:bong. Some linguists have posited the existence of phonosthemes, phonemes that inherently suggest a particular emotional sound. Jespersen speaks of the high toned vowels in gleam suggesting lightness and in glum suggesting darkness (Jespersen 399). The sounds /l/ and /r/ represent continuous, flowing sounds in rattle, jingle, chatter, patter. As another example of phonosthemes, the OED defines clink as a "sharp, ringing sound clearer and thinner than clank, such as a metallic sound on glass" and clack as "a sound intermediate to a clap and a crack."

From the cartoon expressions that were not found in the 1989 edition of the OED, most Americans will readily recognize quite a few. For each word, the context and citation are given. In some cases, origins are suggested.

- Aack
overloaded workers seeing co-worker go on vacation
(Guisewite 4/24/88).
- Aaiigh
exclamation of frustration (Breathed, BC 1/21/88)
- Aarrgghh, Aarrgrh
exclamation of aggression (Breathed BC 1/21/88),
grunt as viking swings broadsword (Browne 10/15/89)
- Aroomp
croaking of frog (Wilson 10/16/88)
- Arooo-o, Arroo
howling of hound (Young 6/10/90),
forest animal noise (Wilson 10/16/88)
- Ba-lump
numerous coats falling to floor (Walker 1/8/89)
As mentioned earlier the ba- gives emphasis, similar
to the prefix ka- which may be avoided here to
make the word dissimilar to clump.
- Beep beep boop beep
pushing a touch tone telephone (Davis 7/23/89)
- Berp
pushing a touch tone telephone (Young 2/25/90)
The /r/ in the word may not be sounded due to a
lack of preconsonantal [r] in some dialects.
- Bimp
golfclub just grazing golfball (Gately 4/1/90)
- Bink
comet ricocheting about the sky (Meyer 4/14/88),
fly ball popping off extended bat (Watterson 6/19/88)
- Bip
skip in record (Trudeau 4/29/90)
- Blam
sound of exploding cigar (Young 11/12/89),
shotgun blasting at flying bird (Breathed BC 2/14/88)
- Blang
man swinging on vine hitting tree (Meyer 12/4/88)
- Blap
dinosaur knocking caveman off tummy (Hart 3/5/89),
hand going through computer monitor (Hammond 8/21/88)
- Bleah
exclamation of disgust (Breathed BC 4/7/88)
- Blop
heavy animals plopping down to sleep (Meyer 3/19/90)
- Blut
splash of mud onto pedestrian (Davis 4/10/88)
Probably a clipping of bluther which the OED defines
as the sound like water gushing out.
- Bok
dish bouncing off wall (Davis 6/10/90),
sound of golfball hitting boulder (Parker 9/25/88)
- Boof
furious fight between drunks (Smythe 2/11/90)

- The word boof may be related to buff and biff.
- Bowrf**
loud barking of dog (Johnston 2/15/90)
Possibly a three way blend of bow-wow, arf, bark.
- Bradabrapabra**
saw cutting limb off tree (Walker 1/29/90)
- Bring, Brriiiinnngg, Brring**
jangling of animate alarm clock (Davis 8/28/88),
school bell at end of class (Trudeau 10/15/89)
- Bum Budda Bum**
loud stereo (Meyer 1/28/90)
- Bzang**
rug beater attachment on hard floor (Johnston 4/16/89)
Possibly a blend of buzz and clang.
- Bzrng**
rug beater attachment on hard floor (Johnston-same)
Possibly a blend of buzz and ring.
- Choom**
cat launched into air (Davis 2/14/88)
- Chu-chung**
cat tangled in venetian blind (Davis 2/14/88)
- Chx chx chx**
snicker of sergeant over picture (Walker 6/12/88)
- Doink, Doinkk**
girl bouncing on hassock (Scott 4/29/89),
bathroom scales after heavy person (Johnston 6/11/89)
- Donk**
bowl hitting perons's head (Davis 1/24/88)
dog bone bouncing off hydrant (Davis 11/27/88)
Possibly related to conk.
- Eeaahh**
exclamation of fright (Hart 2/23/88)
- Eeeetttch**
turtle squeaking as it stretches (Hart 1/29/88)
- Eeerrrgggh**
cat stretching to reach remote control (Davis 8/19/90)
- Eeyaack**
exclamation of frustration (Guisewite 5/23/88)
- Ewww**
child's reaction to spinach (Watterson 5/6/90)
- Fbbpt**
underarm noise made by rat (Breathed 0 12/3/89)
- Fittt**
cloth ripping (Davis 4/3/88)
- Flippy flip**
child's feet flapping in air (Meyer 11/20/89)
An extention of flip, flap.
- Fniff**
cat exclamation of pain (Gately 3/5/89)
- Foing**
child's eyes bugging out (Meyer 11/20/89)
Possibly related to boing.

- Foof
cat blowing on feather in air (Davis 9/17/89)
Probably related to puff/poof.
- Foom, Phoom
tackle in football (MacNelly 10/29/89),
jet airplane take-off (MacNelly 12/24/89),
spear passing through air (Breathed BC 2/14/88)
- Foomp
bed bursting into flames (Meyer 2/23/88),
child landing onto love seat (Scott 4/29/89),
compacted snow falling on dog and cat (Davis 12/4/88)
- Frazz
bolt of lightening from genie lamp (Meyer 1/29/88)
- Fttttt
blowing up balloon (Johnston 9/25/88)
- Fwap
cat caught in roller shade (Davis 2/14/88)
/f/ prefix plus wap/whap/whop.
- Fwoosh
witch on broomstick zooming in air (Meyer 5/20/90)
/f/ prefix plus woosh.
- Fwump
release of spring arm bearing cream pie into face
(Breathed BC 10/30/88)
/f/ prefix and whomp.
- Fzzt
dog imitating cat (Peter 9/28/89)
- Fzzz pzt
cigarette lit on wrong end going out (Trudeau 6/11/90)
- Gack
hacking of fish on beach (Wilson 6/24/90)
- Gishhh
child hit on head with water balloon (Watterson
8/27/89)
Probably related to gush.
- Glerk
snake engorged on toy gun caps (Hart 7/3/88)
Probably related to glug with the pre-consonantal
[r] voiceless.
- Gloop
child swallowing quart of ketchup (Meyer 3/11/90)
Related to glop, glug, gulp.
- Gonk
foot hitting computer monitor (Hammond 8/21/88)
- Goosh
shaken can of soda spurting (Davis 10/9/88),
bucket of water poured on cat in rain (Davis 7/8/90),
water from hydrant hitting crowd (Armstrong 8/19/90).
Probably related to gush.
- Grak
rug beater attachment on floor (Johnston 4/16/89)

- Groogaugh
croaking of frog (Wilson 10/16/89)
- Groog
forest animal noise (Wilson 10/16/88)
- Growmph
forest animal noise (Wilson 10/16/88)
Probably related to grumph.
- Har
psychiatrist laughing on way to bank (Parker 4/29/90)
king laughing on throne (Parker 7/25/90)
Probably a spelling pronunciation of a variant of ha in a dialect with loss of postvocalic [r].
The expression hardy har har occurs in speech with /r/ pronounced, meaning belly laughter.
- Hee
tiger laughing during dream (Watterson 8/28/88),
mischievous laugh (Amend 7/9/89),
sinister laugh (Gately 10/30/88)
The form hee occurs in the OED only as the second element of tee-hee, laughter.
- Hashoo
sneeze (Wilson 10/30/88)
A form of ahchoo.
- Hocchhhh
child collecting mucus for spitting (Watterson 4/15/89).
Probably related to hawk: to clear throat of phlegm.
- Hurk
choking after a mouthful (Davis 6/10/90)
Possibly related to hawk above in a loss of post-consonantal [r] dialect.
- Huurrrrrrrp
cat squeezing into mousehole (Davis 10/8/89)
- Kabing
raisin cookie bouncing off head (Davis 4/15/89)
- Ka-blooie
caveman sliding into homeplate (Hart 10/15/89)
- Ka-boom
thunder (Walker 7/22/89)
- Kaching
bathroom scales after heavy person (Johnston 6/11/89)
- Kapwing
child as superhero taking off in air (Watterson 12/4/88)
- Ka-toingg
bathroom scales after heavy person (Johnston 6/11/89)
- Ka-zokk
bolt of magic from witch (Meyer 1/29/88)
- Kee-rumble
four walls falling to ground (Kelly 7/9/89)
- Ker-clik
instamatic camera shutter (Trudeau 4/16/89)

- Ker-splash
barrel of pickles bursting (Kelly 7/9/89)
- Kerplunk
golfball falling into pond (Parker 10/15/89)
- Kersplat
witch on broomstick crashing (Meyer 12/24/89)
- K-thud
man falling on face (Ryan 12/31/89)
- Kmff
duck tugging on package ribbon (Browne 12/17/89)
- Kvack
duck quacking with Scandanavian accent (Browne 10/16/88)
- Kwok
golfball hit by club (Parker 9/10/89)
- Mnf
very tired person returning greeting (Wilson 6/18/90)
- Mmnnngghz
sipping morning coffee (Wilson 6/18/90)
- Nnnggghhhh
lazy cat trying to reach remote control (Davis 8/19/90)
- Nyah hah hah
sinister laugh (Gately 10/30/88)
- Pfffffffffffffffffffffff
man exhaling from deep breath and blowing away (Hart 2/18/90)
- Phoot
puff of air coming out snorkle (Davis 2/25/90)
- Phpppt
penguin giving CPR to rat (Breathed 0 12/31/89)
- Phzzzt
television tube burning out (12/31/89)
- Ploop
bursting of bubble in cauldron (Browne 8/27/89)
Probably related to pop.
- Poink
cat's head popping up from blanket (Davis 2/18/90)
Probably related to boing, boink.
- Pok
dish of food bouncing against another dish of food (Davis 6/10/90)
Probably related to bok.
- Ptooy, Ptooi, Ptui
dog or people spitting (Watterson 4/15/89), (Walker 8/28/88), (Johnston 11/12/89), (Parker 9/1/90)
- Pwat-t-t
candles blown out and off cake (Trudeau 2/18/90)
- Raaaghhaag
lawnmower (Walker 7/29/90)
- Reek
dog screwing displaced nose in place (Davis 12/10/89)

- Rowf
threatening growl of dog (Gately 7/29/90)
Probably from ruff.
- Rrgghh
exasperated child running in circles (Watterson 11/27/88)
- Rrrrrrr...click
photocopy machine (Johnston 9/9/90)
- Scree
speeding cat turning corner (Armstrong 1/28/90)
Probably clipping of screech.
- Shik
fast strokes of razor on neck (Breathed BC 1/24/88)
- Shoom
racing dog (Davis 11/27/88)
Probably related to zoom.
- Sknxx-x
snore (Young 10/16/88)
- Skrwwk
last bit of soda sucked out of glass with straw
(Johnston 11/5/89)
- Skrink
potato chip bag being pulled (Wilson 11/13/88)
Probably from crinkle.
- Skritch
pen writing on paper (Guisewite 3/18/88)
Variant of scratch, see OED scritch-scratch, continued scratching.
- Slook
cat gulping coffee (Davis 10/29/90)
Possibly related to slonk, swallowing greedily.
- Snarf
baby's sloppy eating sounds (Armstrong M 9/26/89)
- Snerk
blowing nose into handkerchief (Hart 7/21/88)
- Snfplk
monster sound (Browne 10/30/88)
- Snkkkkxxgg
snoring (Armstrong 7/8/89)
- Snx
snicker (Billingsly 7/22/89)
- Splang
coconut hitting bananas (Hart 10/1/89),
wizard turning into monster (Parker 4/8/90)
- Splorpp
animated plate of spinach digging out a spoonful
from itself (Watterson 5/6/90)
- Splot
impact of liquor into glass (Trudeau 1/28/90)
Variant of splat.
- Spluck
stone tablet falling into box (Hart 1/5/89)

- Spluf
sled crashing into snowbank (Meyer 4/8/90)
- Splut
impact of gooey cream pie (Davis 4/3/88)
ball of flaming tar dropped into catapult
(Parker 2/4/90)
Probably a clipping of splutter.
- Ta da
person imitating trumpet fanfare (Guisewite 12/31/89)
- Tappity
dancing feet (Davis 4/3/88), (Thaves 8/21/88)
From analogy to hoppity-hop.
- Thbbft
underarm noise (Breathed 0 12/3/89)
- Thbbpth
sputtering exclamation of denigration (Watterson
1/1/88)
- Thbbt
sound of condescension with protruded tongue
(Watterson 2/14/88)
- Thok
arrow sinking into tree (Browne 88)
mallet hitting croquet ball (Wilson 9/11/88)
- Thwick
golfclub hitting in the rough (MacNelly 6/26/88)
- Thwip
jack-in-the-box hitting against podium (Trudeau
5/13/90)
- Toing, toinggg
cat bouncing toward dog on one toe (Davis 3/19/89)
bathroom scales after heavy person (Johnston 6/11/89)
Possibly variant of boing.
- Twong, twonk
vibration of telephone wires (MacNelly 11/27/88)
- Urk
man grabbed by neck from behind (Falk 1/5/89)
- Voof
viking dialect of barking dog, from woof (Browne
10/16/88)
- Vroombah
sports car engine (Meyer 3/26/90)
- Vroosh
alien space ship taking off (Meyer 4/24/88)
- Vrrrrrrrrrr
saw trimming hedge (Walker 7/29/90)
- Wacka
witch bounding up and down in anticipation (Meyer
3/18/90)
- Whappity wap
group of N.O.W. women tacking sign labelled person
over sign labelled man in the phrase man-in-
the-street. (Templeton 10/19/89)

- Wheeeooo
 police car siren (Gately 1/7/90)
- Wheeyoop
 motorcycle police siren (Gately 8/21/88)
- Whipok
 snap of rolled towel (Davis 3/26/89)
 Blend of whip and pok.
- Whipow
 snap of rolled towel (Davis 3/26/89)
 Blend of whip and pow.
- Whonk
 tailgating ducks hitting witch (Meyer 9/8/88),
 blowing nose (Johnston 10/16/88)
 Variant of honk.
- Whump
 impact of pillow on tiger's head (Watterson 88)
- Wow dee dow
 joyful exclamation (Lasswell 1/19/88)
- Whtttttt
 blowing up balloon (Johnston 9/25/88)
- Whzznngg
 rug beater attachment on floor (Johnston 4/16/89)
 Probably whizz and ring.
- Wwch
 exclamation of surprise (Watterson 9/25/88)
- Yee ha
 flea whooping like cowboy (9/3/89)
- Yeek
 group of ladies screaming (Meyer 4/5/90)
- Ying yung yang
 vibration of putting flag being pulled up (Hart
 9/10/89)
- Zang
 tongue of anteater bouncing off rock (Hart 4/16/89)
- Zot
 anteater's tongue bouncing off rock (Hart 5/29/88),
 lightening chastising hecklers (Hart 5/29/88)
- Zwak
 child hitting father's hand with bat (Sansom 8/21/88)
- Zwip, zwipp
 paper airplane scooping up hot dog (Davis 10/15/89),
 needle grabbed off playing record (Trudeau 4/9/90)

As can be seen, the act of creating onomatopoeia is a very active one that continually enriches the English language. Unlike other words, publishers and editors allow great freedom in occasional spellings. The use of repeated letters allows for continuations of sounds, whereas repeated words indicate repetitive sounds. This is a means to enliven the cartoons by giving suggestions of audible noise which otherwise does not exist in drawings or writings. The use of both a visual and verbal context makes

the sounds relatively unambiguous for the reader. Although some sounds appear to remain in the vocabulary of one writer alone, such as the *thbbft* of Berke Breathed, most sounds employed by writers are not complete innovations, but derive from other similar sounding words. Unlike other words in the English lexicon, onomatopoeic words almost always bring a smile (tee-hee, har-har, chuckle, chortle) to our lips.

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- Bently, Stephen. "Herb & Jamal."
- Billingsly, Ray. "Curtis."
- Breathed, Berke. "Bloom County."
"Outland."
- Browne, Dik. "Hagar the Horrible."
- Curtis, Dal. "Rex Morgan."
- Davis, Jim. "Garfield."
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- Hammond. "Duffy."
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- Johnson, Jimmy. "Arlo."
- Johnston, Lynn. "For Better or For Worse."
- Keane, Bill. "Family Circus."
- Kelly, Walt. "Pogo."

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DISCOURSE PREREQUISITES FOR PHONOLOGICAL ANALYSIS: FREE ALTERNATION IN TARAHUMARA

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In keeping with the theme of this LACUS Forum honoring Professor Kenneth Pike, let me begin by saying that it was just fifty years ago, in 1941, that Pike submitted his dissertation here at the University of Michigan to complete the requirements for the doctorate in linguistics (the book was later to be published in 1943 as *Phonetics*). American linguists including Pike continued to work on codifications of phonology during the forties and fifties, and Pike introduced no small controversy into the debate by publishing *Grammatical prerequisites for phonemic analysis* in 1947 (cf. also Hockett 1968:26 *passim*; Hockett 1987:56). The structuralist orientation in phonology that was influenced by such pioneering work still thrives under rubrics like tagmemic phonology, stratificational phonology, autosegmental phonology, metrical phonology, etc.

It is of course a truism that during the last fifty years of American linguistics the directional arrow representing the source of heuristics in the development of theoretical approaches to language has been largely informed by phonology in a kind of 'trickle up' approach; from phonology upwards towards grammar and on towards semantics and pragmatics.

[Phonology ---> Grammar ---> Semantics --->]

Perceived stability in phonological patterning gave impetus to the hope that language would turn out to be a highly codified phenomenon with fixed inventories of elements and rule structures that could be discovered and formally accounted for (leading to algebraic models and metaphors of input/output devices). The notions of rigidity, discreteness, systematicity, arbitrariness, constancy, and contrastiveness in linguistic structure thus had their origins in codifications of phonology; and then came to dominate in formal approaches to syntax and semantics. It is, I think, for this reason that present day linguistics still labors under the dominant hypothesis of a well defined synchronic preexistent structure underlying language use.

During the course of this Forum in two wonderful conversations with Kenneth Pike I asked him if he thought that our current conceptualizations of phonology would be different if the directional arrow of heuristics had been a 'trickle down' instead of a 'trickle up' orientation using insights from

the study of discourse to inform the study of syntax and phonology. His reply was that it would no doubt have been different but that we cannot be sure how -- "you can redict the past, but that you cannot predict the future". It is, of course, quite likely that our phonological 'theories' would be considerably different if the order of heuristics had been the other way around.

This paper is about Tarahumara morphophonemics. Until now I have had little to say in print about the phonology of Tarahumara, a Uto-Aztecan language that I began to study a few years ago (cf. Burgess 1985). But I have encountered some persistent problems in trying to understand the reason for existence of widespread free alternation in the shapes of Tarahumara morphs. The problem in Tarahumara is not that it is difficult to explain the alternation phenomena using either traditional morphophonemics or autosegmental feature spreading rules - in most instances that is relatively easy - but rather lies in the lack of ideational motivation for the free substitution of phonemic shapes¹. In this paper I would like to offer some tentative suggestions about the communicative functions of these alternations and to indicate their possible implications for a cognitive phonology.

In order to be able to illustrate the free alternation phenomenon, let me begin by presenting a traditional review of the phonological elements in Tarahumara. The data are from texts recorded over a five year period, at first on audio tape, and more recently on video tape and transcribed in the field with the aid of an informant². The terminology is traditional and intended to be neutral.

Some 'Phonetic' Segments	Some 'Phonemic' Segments	Some 'Morphophonemic' Segments
p t t̥ ɬ ʈ k ' b r̥ ʃ g l̥ s ʃ h m n y w	p t c k ' b r̥ g l̥ s h m n y w	p t c k ' B T̥ G b r̥ g l̥ s h m n y w
i u i: u: e o e: o: a a:	i u e o a	i u e o a

2. Examples of Contrasts (unmarked stress is on the penultimate):

2.1 Initial Consonant Contrasts

English Glosses

pací	tewé	cabé	kirí	'we	corn	girl	ago	slow	very
bowé	rewé		gomici		path	call		arroyo	
	sawá		homa			leaf		dig	
mo'ó	nará	yorí	wí'cí		head	cry	cauc	skin	
	lowí					crazy			

2.2 Medial Consonant Contrasts:

kipu	cati	hoci	laka	ba'f	quant	ugly	hole	blood	water
pebi	weri		uga		only	big		with	
	kusf		bahf			stick		drink	
pama	noca	iyá	rawé		throw	work	fast	day	
	eéla					mother			

2.3 Vowels: Stressed (final)

rawf	sunú	bird	corn
rawé	sonó	day	corn stalk
rawá			nerve

Unstressed

biré	sunf	one	finished
remé	ro'cá	tortilla	lizard
maná		put	

3. Phonetic Variation:

3.1 Complementation:

(Unstressed vowels are long in open syllables phrase initially or in positions of prominence within the macrosegment)

[V V] ~ [V] suunú batari bahi-bo ba
 corn beer drink pl Junct
 'we are going to drink some corn beer.'

baahi-bo a'rf sunú batari ba
 drink pl soon corn beer Junct
 'we'll drink soon some corn beer.'

[ɛ] ~ [j] (/voiced in stressed syllable after /h/ plus Voiceless Cons in preceding syllable)

gari-čf 'house (Loc)' ~ bihti-jf 'dwelling (Loc)'
 mo'o-čf 'head (Loc)' ~ tihti-jf 'rock cliff'
 ro'pa-čf 'stomach' (Loc)
 reso'-čf 'cave' (Loc)

3.2 Phonetic Free Variation (in some or all env):

[b] ~ [β] (intervocalically) uba/uβa 'swim'

[g] ~ [γ] uga/uγa 'with'

[ʃ] ~ [č] (/ before all Vo except +Fr) ra'fʃa/ra'fča 'speak'
 ɣuhparosa/ɣuhparosa 'hummingbird'
 o'kocf 'dog'; racf 'nut'

[s] ~ [š] (/ before all Vo except -Fr) simf/šimf 'do, go'
 siká-ra/šiká-ra 'hand'
 súra-ka 'heart; so-ma 'wash'

4. 'Phonemic' Distinctions with low functional load

/ p / = / b /	paniko 'wash hands' = batusi 'grind'
/ k / = / g /	károwa 'shadow' = garabósi 'locust'
/ r / = / l /	rowf 'cottontail' = lowf 'crazy'
/ t / = / r /	towf 'boy' = rowf 'rabbit'

5. Regular Vowel Harmony (phonologically conditioned)

/ i / ~ / e / ~ / a / ~ / o / ~ / u /	sikwí-ki 'small ant' (prototypical)
	ruwé-ke 'jackrabbit'
	mocá-ka 'large ant'
	sonó-ko 'cornstalk'
	sunú-ku 'corn'

6. Lexically or Grammatically Motivated Morphophonemic Alternation - {plural}:

// B // = / p / ~ / b /	upugu-ra/buku-ra 'owners/owner of animals'
	peré-ame/beht-éame 'live/dwell'
// W // = / p / ~ / w /	opa-rú-ame/owá-tu-ame 'poison, women, and dangerous thing/s'
// T // = / t / ~ / r /	rosákame/tosakame 'white/white (pl)'
	šihákame/serákame 'red/red (pl)'
	rihpi-ma/tibi-ma (pl) 'to stay'
// G // = / k / ~ / g /	mukí/umugí 'woman/women'

7. Some combined patterns of morphophonemic alternation and allophonic variation:

/p	B	b	t	T	r	l	č	k	G	g	i	s	h	m	n	y	w	W	i	e	a	o	u	
/p	b	t	r	l	č	k	g	i	s	h	m	n	y	w	i	e	a	o	u					
lp	b	β	t	t	r	l	č	j	k	g	ɣ	i	s	š	h	m	n	y	w	i	e	a	o	u
Cl	Cl	Sp	Cl	Cl	Fl	Fl	Cl	Cl	Cl	Cl	Cl	Cl	Sp	Sp	Sp	Cl	Cl	Lm	Ds	Vo	Vo	Vo	Vo	Vo
Lb	Lb	Lb	Ap	Ap	Ap	Ap	Fr	Fr	Fr	Do	Do	Do	Gl	Ap	Fr	Sp	Ns	Ns	Pa	Ve	Fr	Lo	Do	Do
	Vc	Vc			Pa	Pa	Al	Al	Pa		Vc	Vc				Lb	Ap					Rd	Rd	Rd
									Vc															

The functionalist maxim, 'difference in form implies a difference in meaning' stated thus is problematic. I believe the maxim - along with its corollary, 'same form with different context implies difference in meaning' - is essentially correct as a rule of thumb guiding analysis. But neither of these commonsense rules of thumb can be absolute, and both are problematic. Alternations in Tarahumara are to great extent unmotivated in that they do not signal a difference in *ideational* meaning. I have called them free alternations, because they lack lexicogrammatical or semantic motivation. In classical phonological terms they are not allophonic variations but rather free morphophonemic alternations involving distinct phonemes. They call to mind alternations like *economics/economics* or *soot/soot* in English. But while such 'unmotivated' free alternations are rare in English, they are very frequent in Tarahumara discourse. The

phenomenon is a central feature of the phonology and can thus not simply be shunted aside as residue as it often is in English phonology³.

One is not at all comfortable with the notion that the use of audible differences in oral discourse is in fact ever unmotivated. Some speakers appear to exhibit more free alternations than others, but all Tarahumaras vary the phonemic shapes of morphemes in an *apparently* chaotic, random way, though certainly not all morphemes in the language are subject to free alternation to the same degree. Tarahumara speakers are non-literate, so there is no influence of visual imagery and alphabetic discreteness on their conceptualizations of sound. Discourses are immediate, concrete, and extremely context dependent, and this fact is strikingly evident in any instance of Tarahumara speech.

Now let us consider some decontextualized examples of such 'free' alternation in Tarahumara (most are demonstrably autosegmentally conditioned assimilations).

8. Lexically and Grammatically 'Unmotivated' Alternation:

8.1 Consonant Gradation

/ p / ~ / b /	pahčá/bahčá
/ p / ~ / b / ~ / m /	pinó/binó/minó 'himself' (refl) panigi/banigi/manigi 'there up slope low angle'
/ b / ~ / w /	batarí/watarí 'teswino'
/ m / ~ Ø	mehká/ehká 'far' mihtuge/ihtugi 'far down the canyon there' mapu/apu/apo/ap/am (subord part.)
/ ' / ~ / t /	re'é/reté 'rock'
/ t / ~ / r /	rewé/tewé 'be called' reó/teó 'man' rimuka/timuka 'dream' rihpi-gá-ka/tihpu-gá-ka 'knife, axe' rehpopa/tehpopa 'back'
/ r / ~ / l /	rabóe-ra/labóe-ra 'vein' roka-ma/loka-ma 'mix up and eat pinole' éera/éela 'mother' ga'rá/ga'lá 'good' reroi/leloi 'potato' ráname/láname 'redish yellow'
/ s / ~ / č /	čĩ'tf/šĩ'tf 'wrinkled, old, ugly, bad' koaši/koachi 'hat' šihko-ci/čihko-ci 'corner'
/ k / ~ / g /	kema-ka/kemá/gemá 'blanket' ko'á/go'á 'eat' karí/garí 'house' ahákame/ahégame 'alive'
/ k / ~ / n / ~ Ø	koná/noná/oná 'salt'
/ k / ~ / r / ~ / g /	to-ke/to-re/to-ge 'lift, carry (past)' re'pa-ka/re'pa-ra/re'pa-ga 'steep angle up'

/ r / ~ / g /	kuru-ria/kuru-gia 'love (pass) = fell in love'
/ ' / ~ 0	ga'wí/gawí 'mountain, world, land'
/ g / ~ / w / ~ 0	uga/uwa/ua 'with (com)' kohci-gá/kohci-wá/kohci-á 'sleeping' na'pega/na'pewa/napea 'together with' nara-gá/narawá/naraá 'crying'
/ g / ~ / w / ~ / y / ~ 0	nagó/nawó/nayó/naó 'four'
/ g / ~ / y / ~ 0	ga'rá/ya'rá/a'rá 'good'
/ w / ~ / y / ~ 0	basorowa/basoroya/basoroa 'visit'
/ w / ~ 0	wenomf/enomf/(unomf) 'money, gold' wehká/ehká 'many' wici-mea/ici-mea 'plant, fall' weca-ti/eca-ti 'needle (inst)' ba'wí/ba'f/baf 'water' bo'wá/bo'á/boá 'sheep, wool' ku'wíru-ma/ku'fíru-ma/koíro-ma 'help, assist'
/ h / ~ 0	bahf/baf 'drink'; nehé/neé/ 'I' nahfánf/nafánf 'sing'
/ y / ~ 0	eyéna/eéna 'go' reyawí/real 'herb' ayena/aena 'yes'
/ m / ~ / w / ~ 0	mapaca/wapaca/apaca 'shirt'
/ w / ~ / y / ~ / h /	buwema/buyema/buhema 'take out, remove'

8.2 Vowel Gradation: irregular assimilation with doublets and multiples

/ i / ~ / u /	cirugf/curugf 'sparrow' ihkurf/ihkírf/wihkírf/uhkurf 'new' cucurubu/cicurubu 'how much? (pour stuff)'
/ i / ~ / e / ~ / a /	gita/gite/giti 'with (inst)'
/ i / ~ / e /	cirigá/ciregá 'how?' míre'ré/míri'ré/míri'rí 'there down slope' rete-wá/riti-wá 'see' rehtu-ku/rihtu-ku 'lice' eci/ici 'this'
/ i / ~ / o /	roberto/riberto
/ i / ~ / e / ~ / o /	si'porf/se'porf/so'porf 'star'
/ u / ~ / o /	suwí-sa/sowí-sa 'die (time) = when we die' simi-ru/simi-ro 'going by' korú/kurú 'love' rasíruqa/rasíroga 'intense' tu-mea/to-mea 'carry, lift (nonpast)' ku'wi-ma/ko'wí-ma 'help'
/ i / ~ / a /	bahí-ci/baha-ci 'drinking place' ga'raba'wí-ci/ga'raba'wa-ci 'placename'
/ wa / ~ / o / ~ / u /	wa'rú/o'rú/u'rú 'big'
/ o / ~ / a /	kobé/kabé 'where?' rapoko/rapako 'yesterday' sinéoma/sinéame 'all, everybody'

Such 'free' alternations are clearly audible to speakers of Tarahumara, and thus are at least *available* for use in communication. Among the distributional characteristics of the alternations is that they occur in forms throughout the grammar of the language, i.e. forms of semantic as well as grammatical sets (parts of speech). As mentioned above it does not appear to be strictly codified. It occurs for one word elicited forms as well as pervasively in running discourse, both in slow speech and in allegro speech forms. It seems to vary from speaker to speaker, and also within the speech of an individual (perhaps defining styles). At times it appears to have a creative function, and is often present in language play. Specific details of the free alternations also appear to mark regional dialect variation.

A number of subtle iconic phonological functions may be observed in context. Phonological gesturing is a frequent feature of Tarahumara speech. For example, intensified articulation has an iconic function in indicating distance in space or time: *mítú* 'down over there', *míhtú* 'way over there down', *mmíhtú* 'way down there far away'. The articulatory intensification is normally accompanied by a simultaneous head gesture, with the chin rising and pointing in the direction of the place of reference. Muted sound symbolism can be identified throughout the lexicon, as for example in the pairs: *sekwi-ki* 'small ant' / *moca-ka* 'large ant'; or *o'rú* 'big' / *pi'tiri* 'tiny' (cf. iconic 'registers' in Rengao, Gregerson 1987; Waugh 1983.). Onomatopoeia, both in its nonce imitative forms and its more codified lexical variants, is also frequent in Tarahumara usage, particularly in such expressions as animal vocalizations and other voices of nature.

- | | | | | | | |
|----|-------------|----------------|-----|----------------|------------------|----------------|
| 8. | <i>gusú</i> | 'cluck cluck'' | ==> | lexicalized as | <i>gusú-cane</i> | 'to cluck-say' |
| | <i>roró</i> | 'oink oink' | ==> | lexicalized as | <i>roró-aní</i> | 'to oink-say' |

This onomatopoeic process is very productive in Tarahumara, and there is also a large number of the corresponding grammaticized imitative forms in the language.

Recent study of iconism in syntax and semantics, has pointed out, for example, that (in languages that have all three) there is a diminishing strength of reference in the progression

NOUN -> PRONOUN -> ZERO ANAPHORA.

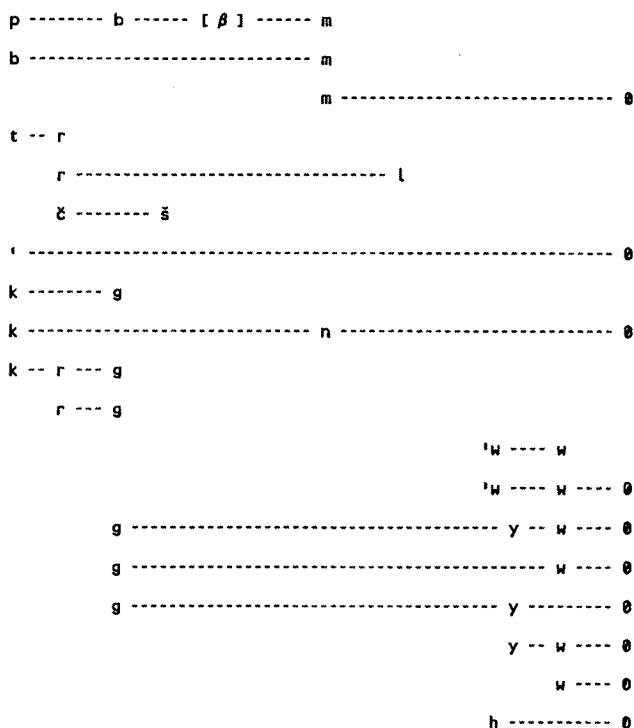
To the degree that such cases typically involve phonological reduction as well, they are iconic; more/stronger expression corresponds to more/stronger content, and less to less. The dominant tie from phonology to grammar and discourse is thus not necessarily directly to 'lexical semantics', but rather to analog discourse functions that do not necessarily lend themselves to discrete digital codification. It has long been recognized in linguistics that phonological reduction is an important feature of real discourse; and that such weakening is characteristic particularly of allegro

speech. Variation of phonological stress is identified with functional perspective, and weakly stressed forms with a concomitantly weaker discourse function tend to exhibit a diminished strength of articulation. This variable may be referred to as the 'Iconic Strength of Articulation in Discourse Context' or ISADC.

In searching for a plausible explanation for the pervasiveness of free alternation in Tarahumara I will now propose to invoke the principle of ISADC, hence the notion of discourse prerequisites⁴. If we plot the sets of free alternations tabulated in 8., above, each according to its perceived strength of articulation, the result is something like Figure 1.

STRENGTH OF ARTICULATION

STRONGER _____ WEAKER



nonassimilated vowel ----- assimilated vowel ----- suppressed vowel

Figure 1.

Such charting of the data makes it possible to view all of the instances of free alternation in a similar way, facilitating the search for an integrated explanation. At this time there is growing evidence for a non-homogenous range of iconic functions, involving among others subtle distinctions on the the Given/New continuum within a discourse.

The exploration of so-called functionalism in the last couple of decades of American linguistics - growing both from the influence of European functionalism, and from a dissatisfaction with the dominant American template models of linguistic structure - has not yet resulted in a 'trickle down' reorientation of the study of sound functions in language that would yield something that we might appropriately want to call an 'emergent' phonology, on the analogy with emergent culture and emergent grammar (cf. Hopper 1987, 1990).

The study of free alternation in Tarahumara texts is still in its beginnings, and further work will be necessary for an elaboration of the various analogical functions; but it is becoming quite clear that the alternations are not free at all, but rather motivated by their discourse functions. Nor are they associated with a single well-codified pattern or structure, at least not in any digital way. They are I think examples of the kind of structure or patterning that is not complete and homogeneous, but that cannot profitably be labelled as characterizing secondary phenomena or residue. It is in fact quite possible that their implications for phonology in general are very central indeed, and that phonology - like syntax and semantics - is not as highly pre-codified as is assumed within most current phonological theories.

NOTES

1. Father David Brambila's grammar of central Tarahumara (1953) as well as his dictionary (1976) also contain large numbers of forms exhibiting these free alternations, with a frequent explanation that they are not motivated. The dictionary is voluminous, in part because of widespread multiple entries reflecting alternant forms of morphemes.
2. The transcriptions have been multiply checked and verified to insure phonetic accuracy of the recorded data.
3. Numerous reports on other Amerindian languages, particularly Uto-Aztecan languages, indicate varying amounts of such 'residue' phonological phenomena, including free alternations, that are sometimes simply alluded to, or listed, or ignored altogether.

4. I would like to thank Ilah Fleming for suggesting the title 'Textual prerequisites for phonological analysis' during the discussion of this paper. I have adopted a version of the title, given the theme, but have used the term 'discourse' instead of 'textual' for reasons related to my own work.

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VI

DISCOURSE AND TEXT ANALYSIS

THE DISTRIBUTION OF INFORMATION IN SUBORDINATE CLAUSES: EVIDENCE FROM CONTROLLED ORAL NARRATIVES*

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Introduction

Discourse analysis has been undertaken on a wide variety of language, ranging from formal written texts at one extreme to casual and informal oral conversation at the other. Regardless of the type of discourse being investigated, it is universally agreed that an extended discourse is far more than a simple concatenation of sentences. However, there is less agreement as to the specific principles which govern the structure of discourse. Within the discourse analysis literature, considerable attention has been given to those social factors responsible for certain types of variation in language use, including sex of speakers and hearers, formality of situation, age, nature of the topic under discussion, and the like (see, for example, Stubbs, 1983, Brown & Yule, 1983).

There is, however, another approach to the analysis of discourse, one which complements the sociological perspective, but focuses on the contribution made to the organization of discourse structure by language processing principles and constraints. This perspective, which derives more from a cognitive than a sociological basis, shares much in the way of methodology and orientation with research in experimental psycholinguistics. The present paper is situated within this cognitive approach to the study of discourse.

One principle which has assumed considerable importance in the discourse analysis literature is that which deals with the distribution of given and new information. This paper examines how these information types are distributed among subordinate clauses of different types, using data taken from two separate experiments.

The given/new distinction has been widely discussed for well over a decade (see, e.g., Halliday, 1967; Chafe, 1970 for relatively early discussions). The basic insight underlying the distinction is simply that some information, called "given" or "old", is shared by the speaker and hearer, while other "new" information is known only to the speaker and is communicated to the hearer. Moreover, the speaker appears to exploit the hearer's knowledge in the construction of sentences, while at the same time the hearer's expectations also permit participation in the "given/new contract". Given and new information are typically separated systematically and encoded differently. For example, (1b) is quite an appropriate answer to (1a), while (1c) is not (assuming the

natural sentence stress falls on the final word in both (1b) and (1c):

- 1a. What did Fred send Mary?
- b. Fred sent Mary a bouquet.
- c. Fred sent a bouquet to Mary.

Of course, it is clear that (1c) can be an appropriate response to the question if primary stress is placed on *bouquet* rather than *Mary*. The general tendency for English is that given information typically precedes new, and one explanation for this (see Clark & Haviland, 1974; Smyth, 1988) is that if the speaker initiates a sentence with shared information, it provides the hearer with a mental "address" to which new information, coming later, can be attached. New information is therefore typically expected to come along only when it can be directed toward and integrated with already existing information.

In spite of the intuitive simplicity of the given/new distinction, there are problems with it, not the least of which is that the distribution of information within a sentence does not co-vary with particular constituent types (not all NPs are given or new, nor are all NPs of one specific sort always necessarily given or new). Instead, there appear to be *positions* within sentences which are typically given or new. As the example above illustrates, and as has been often noticed, given information tends to come earlier in a sentence than new, although this "unmarked" order may be overridden by the expeditious use of contrastive stress or other devices.

A second problem is that of determining precisely what "given" and "new" mean. Prince (1981) discusses this in terms of a variety of different types of givenness, a taxonomy elaborated further by Brown and Yule (1983). Clearly, it is not necessarily for some referent to have been overtly mentioned to make it given, since information which is known by virtue of one's world knowledge, by access to features of the situation or context being discussed, or even by inference can all be more or less given. Accordingly, any assessment of the empirical status of the given/new constraint must rely on an operational definition of what is meant by given or new, and this is not an easy matter. Consider, for example, a discourse in which (2) is embedded:

2. First the fellow gave his wife a massage, and then she returned the favor.

Is *favor* given or new? Moreover, is *returned the favor* given or new? Common sense suggests that even though the expression *returned the favor* is new in a literal sense, we nevertheless know quite well what it means, namely "gave a massage", and therefore it seems to be informationally given. Using the criterion that an expression must be mentioned explicitly in order to qualify for the status of given would yield precisely the wrong result

here. Or consider the case of (3), in which the question of the newness of *branch* is raised:

3. He climbed half way up the tree and chopped off a long branch.

Here again, *branch* is literally new, but from world knowledge, it is clearly given, being a part of the tree. However, the VP itself appears to be new.

Coming to terms with such problems as these is crucial in any real analysis of the given/new constraint. Within the research reported here, it is assumed that when the referent of a constituent is overtly mentioned, or inferable, or can be established by situation or context, it is operationally defined as given. Only if the referent is truly novel and is being introduced for the first time in the narrative is it treated as new.

While there has been considerable empirical evidence adduced in support of the given/new distinction and its operation within simple sentences (Clark & Clark, 1977; Smyth, Prideaux, & Hogan, 1979; Givon, 1979; Gee, 1986), less attention has been addressed to how it operates within main versus subordinate clauses. Bever (1970) has suggested that main clauses should be more typically new and subordinate more usually given for the simple reason that subordinate clauses are more usually "presupposed" and therefore mutually understood, while main clauses are more usually not presupposed. This is of course an empirical question and a broad one, since subordination covers a variety of clause types. One purpose of this study is to assess the hypothesis that in complex sentences, given information tends to be coded within subordinate clauses, and new information in main clauses. In order to do this, two different types of subordinate clauses, relative and adverbial, are examined. The specific hypothesis to be assessed is:

Given/New Hypothesis: New information tends to be found within main clauses and given information within subordinate clauses.

Data for testing the hypothesis are taken from two separate studies designed to collect oral narratives from a number of independent subjects under controlled conditions. The two studies, while different in detail, employ a methodology in which participants watch videotaped scenes and then describe what they have seen, much like Chafe's (1980) "pear stories" studies.

Experiment 1 : The Bar Scene Study

The data reported here are taken from a larger study originally designed to investigate various aspects of language production through the collection of data taken under controlled conditions. The primary focus of that larger study was directed to the

contribution of selected local processing constraints to the organization of discourse.

Method. Sixteen volunteers watched a silent videotape of various activities in a bar, then provided an oral narrative description of what they had seen. In all cases, participants were instructed to watch the TV clip twice, then provide an oral description of the events which had transpired. They were told to assume that the hearer had not seen the tape and that their job was to provide an adequate description so that the addressee would have a good and complete understanding of what had taken place in the scene. Participants were urged to be as detailed and complete as they felt necessary to impart a full description of the events. Their taped descriptions were later transcribed for analysis.

The stimulus material was an eight-minute silent, black-and-white TV clip showing several events within a bar. There was no "story" as such, but rather a series of ten scenes in which people in a bar are seen talking and interacting. Each scene is separated from the previous one physically by a clear change of camera position and focus of attention. A silent clip was selected in order to elicit descriptive language from subjects, without the possibility of names being used (see Prideaux & Baker, 1986). There are several characters in the clip, with a varying number in each scene, and with some characters appearing and reappearing later, in different combinations. In order to differentiate among them in the descriptions, subjects are forced to use a variety of descriptive language including especially relative clauses.

Each taped narrative was transcribed in conventional orthography, but faithfully included pauses, false starts, hesitations, and the like. No editing was carried out on the descriptions. Once the 16 protocols were assembled, each was analyzed in detail.

As is well known, oral data are notoriously different from formal written texts. To carry out the analyses it was first necessary to establish criteria for parsing the protocols. The basic decision was to respect quite strictly the surface structures of the descriptions. Each main clause was bracketed and such connectives as "and then...", which often linked main clauses, were factored out. Next, subordinate clauses were bracketed, with relative clauses (those with a full tensed verb and a potential relative pronoun) separated from other subordinate clauses. Moreover, there were numerous instances of hedges or asides, as in:

4. And so then, uh ... what came next? ... oh ... then the waitress brought another drink to the angry lady at the first table...

In such cases, the preliminary material up to "then the waitress" was factored out, and only the descriptive materials

were subjected to analysis. Three independent judges scored the data.

Results. Each description was analyzed in terms of a variety of syntactic and discourse properties, including a detailed analysis of all occurring relative clauses. The kinds of information tabulated for each relative clause included *type* (restrictive or non-restrictive), given or new *information status*, and *definiteness* of the head NP to which the relative clause was attached. The givenness of a relative clause was determined operationally in terms of whether or not the information within the clause was available by direct earlier mention, inference, or pragmatic considerations. Only if the information within the relative clause was fully novel was it treated as new. The definiteness of the head NP was important since it has been proposed (e.g., Givón, 1979) that new referents tend to be coded with indefinite NPs, while given referents are generally represented by definite NPs, as in:

5. A woman was sitting talking with an unhappy man at a corner table. The woman was angry and returned her first drink,...

Once all 16 protocols were coded and tabulated, the results were pooled. From the 16 subjects there were found to be only eight non-restrictive relative clauses, but 114 restrictive relatives. The tabulated results of the restrictive relative clauses are found in Table 1.

Table 1. Oral Relative Clause Frequency Data

HOST NP	<u>RELATIVE CLAUSE STATUS</u>	
	GIVEN	NEW
+Def	80	8
-Def	8	18

Table 1 reveals that of the 114 restrictive relative clauses, 88 encode given information, while only 26 represent new information. A χ^2 -test reveals that this difference is significant ($\chi^2(1) = 29.5, p < .001$). Thus, from these data it seems that there is a general tendency for restrictive relatives to encode given information.

There is more to the story than this, however. Because there were some ten separate scenes and about a dozen characters

in the film clip, simple names or pronouns did not suffice to identify the various characters. Moreover, it was frequently the case that one character would be present in a scene, absent in the next, and then reappear. This aspect appears to have induced in the narrators a general strategy, used throughout the data, of using a given relative clause to reintroduce a participant from an earlier episode, as in:

6. And then, it switches back to the ... the couple with the girl *who didn't like her drink*.

More interesting, however, is the fact that a strong correlation exists between the information status of a relative clause and the definiteness of the host NP. For example, of the 88 restrictives bearing given information, 80 are attached to definite NPs, as in (6) above. Similarly, of the 26 new restrictives, 18 are attached to indefinite NPs, as in:

7. And she reached into her purse and pulled out a ... an envelope... ah... she gave it to a ... a third party *who just joined them*.

In this instance, the relative clause introduces new information, since the third party had not been present in any previous episode. The correlation between information status and definiteness of the host NP is highly significant ($\chi^2(1) = 41.7, p < .001$) and supports a principle of "givenness agreement" between a host NP and the modifying relative clause. That is, the claim that given referents tend to be encoded with definite NPs and new referents with indefinites is supported by the fact that the modifying information is also given or new, making the entire NP (host plus relative clause) either given or new.

In summary, this first study suggests that while the given-new hypothesis cited above is generally supported for restrictive relative clauses, a more finely-grained analysis is required to explain the results. In particular, what is of more importance is the fact that given relative clauses tend strongly to be attached to definite NPs and new relative clauses to indefinite NPs. Thus the blanket version of the given-new hypothesis concerning the information status of subordinate clauses must be replaced by a more sensitive description. In particular, given relative clauses are used to draw the hearers attention to a previously mentioned referent by associating with that (definite) head NP some information already imparted to the hearer. In contrast to this strategy, a new relative clause tends to permit the introduction of a new referent and at the same time provide descriptive information about that referent, as in (7) above.

To this point, the given-new hypothesis has been assessed only with respect to relative clauses. In order for it to receive a fuller evaluation, it must be tested against other types of subordinate clauses, such as adverbial clauses. In the data set from

the first experiment, however, there were far too few instances of such clauses to permit serious analysis. Accordingly, data from a second experiment were investigated.

Experiment 2. The Adam's Rib Study

Method. This study, like the first, was originally undertaken to examine a variety of discourse phenomena, again using the methodology of eliciting oral narrative productions under controlled conditions by having participants first view a short scene, in this case taken from a movie, and then provide an oral description of what they had seen (see, e.g., Prideaux, 1990). Twenty-four volunteers each viewed one four-minute, self-contained scene (the famous "massage" scene from the film "Adam's Rib") and then narrated to the experimenter what had been seen. The scene had a sound track, and was in black-and-white. Since only two characters participated in the scene (played by Spencer Tracey and Katherine Hepburn), few descriptive structures were needed to identify the characters. The narratives did contain a considerable number of adverbial subordinate clauses. It is to these that the analysis is directed.

Once the 24 narratives were collected, they were transcribed and coded for such features as clause structure, location of subordination, and the like. The subordinate adverbial clause data were also coded for their given/new information status. Again, a clause was scored as containing given information if it was judged that the content of the clause was (a) overtly present in the preceding context, (b) inferable from the context, or (c) pragmatically available. Three independent judges scored the data.

Results. Some 88 adverbial clauses were found within the 24 narratives, an average of 3.7 per narrative. Of the adverbial clauses, only 26 were found to encode given information, while the remaining 62 represented new information. This result flatly contradicts the hypothesis, since there are significantly more new than given subordinate adverbial clauses ($\chi^2 = 14.7$, $p < .001$). Such adverbial clauses were quite typically used not only to describe sequences of events, but also to introduce new information in both clauses.

Only 44 restrictive relative clauses were found in this study. These reflect quite a different strategy from those of the first study, since significantly more were new (33) than given (11), thereby refuting the original hypothesis. In order to make sense of this result, it is important to note how the relative clauses were used here in contrast to their use in the former study.

In the case of the "Adam's Rib" scene, only two characters were involved. They were typically introduced in a narrative and then referred to by their normal pronominal referents (*he*, *she*). There was no case in which the two characters could be confused,

and accordingly no need to use relative clauses for an identifying function. Rather, the few that were used (and their average frequency of 1.8 per subject was far less than that of 5.5 per subject in the former study) tended to introduce new information, as in:

- 8a. They obviously were were pro ... fairly progressive
for uh the time period *that the film would have been
cast in.*
- b. ...a song *that Katherine Hepburn liked...*

That is, the function of relative clauses in the present study was considerably different from that employed in the bar scene narratives, at least to the extent that in this study the majority of the relative clauses introduced new information. Examples of those encoding given information are:

- 9a. ... in this court case *that she's involved in ...*
- b. ...the resentment *the husband feels towards the wife
there...*

There is a general tendency to use the relative clause to refer to some piece of information already established, perhaps to reinforce the strength of the head NP.

In summary, the results of the second experiment constitute serious counter-evidence to the Given-New Hypothesis as formulated above. First, the hypothesis is too strong in that it is not equally applicable to both relative and adverbial clauses. Second, even within those relative clauses where the hypothesis is supported, the key factor appears to be a relationship between the definiteness of the head NP and the givenness status of the relative clause. Thirdly, the use of relative clauses differs in an interesting way between the two studies. In the first study, restrictive relative clauses tend to be used to bring back into prominence major characters who had been introduced earlier. In the latter case, however, with only two characters interacting, there is no need to use any more elaborate a structure than a pronoun, since *he* and *she* are entirely non-ambiguous here.

Conclusions

In conclusion, the original given-new hypothesis is not supported by these data. The most important finding for relative clauses is that given relative clauses tend to be attached to definite NPs and new relative clauses to indefinite NPs. For the adverbial clauses, the hypothesis is roundly rejected. In fact, just the contrary is found to the operative for these structures: more adverbial clauses tend to be new than given.

Further research is of course needed. Other types of subordinate clauses need to be investigated to evaluate more closely the role of the given-new constraint, and a closer look is needed at the definition of given and new information. Several issues arise here. First, the constraint itself, while enjoying considerable support for simple main clauses, might be highly sensitive to differences in types of givenness. For example, it may be the case that information which is inferable given is harder to process and therefore less likely to reside in subordinate clauses than other types of given information. In fact, this seems to be the result for a small subset of the Adam's Rib data which was tabulated in terms of different types of givenness. Moreover, it is clear from other studies that the function of the given-new constraint is to provide a relatively local bridging between utterances, and as such information which is crucially needed for bridging at one point can be expected to decay as soon as more information comes along (for empirical evidence that this is in fact the case, see Smyth, 1988). That is, the continual accretion of given information, all of which is active in the working memory, would tend rapidly to congest the system and bog down the processing which it is presumably facilitating.

The results reported here underscore the need for a finer grained analysis of the given-new hypothesis and a closer investigation of the ways in which given and new information are coded within subordinate structures.

NOTE

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SEMANTIC/PRAGMATIC REGULARITIES IN INFORMALLY MARKED LEXIS:
BRITISH SPEAKERS IN SPONTANEOUS CONVERSATIONAL SETTINGS

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I. Introduction¹

Although applied linguists, sociolinguists, lexicologists and dialectologists have provided rich sources of information about lexical variation for a very long time now, this information is rarely reflected in lexical theories that are not anchored to a social base.² Instead, generalizations are made on the common core of words and expressions comprising stylistically neutral items. One theoretical result is that literal meaning comes to be associated narrowly with stylistic neutrality, but the variety label (neutral) is no longer acknowledged explicitly as a variant feature.

A range of further distorting consequences follow, but one of these, to which my project responds, is that little account is offered of lexical regularities that may be encoded in items that are not stylistically neutral. Since the most influential mainline North American lexical theories of the last thirty years have been lexical semantic in orientation, issues in stylistic variation have been finessed by maintaining that variation is a pragmatic issue. Nothing troubling turns on this stipulation unless it fails, as I think it has, to stimulate the construction of lexical theories which reflect the comprehensive nature of lexical content. By lexical content, I refer not only to ideational (propositional) meaning, but also to interpersonal (social and expressive) meaning (Lyons 1977, Halliday 1970), as these express, encode and help to define stylistic (attitudinal) orientation. The goal for lexical theory should be to capture generalities that are attributes of the full resources of lexical meaning.

Largely as a result of the construction of pragmatic theories and the impetus of conversational and discourse analysis, lexical theorists also have begun to investigate the ways in which the ideational content of a lexical item may relate systematically to its interpersonal value. But substantial progress will not be made until lexical theorists reconsider the function of an empirical criterion that has been at the centre of lexical-theoretical thought: a criterion of decontextualization.

This criterion has both facilitated and impeded progress. First, the nature of facilitation. It is now well understood that ideational meaning is systematically explicable via the syntagmatic and paradigmatic relationships a unit incurs; and

it is also widely acknowledged that interpersonal meaning is crucially tied to the situations of use in which a lexical unit characteristically functions. Therefore, while a parsimoniously conceived notion of the syntagmatic and the paradigmatic may identify ideational meaning well enough, such a conception usually fails to illuminate the interpersonal dimension. This result is expressly sought after, a criterion of maximal decontextualization being used to distinguish between semantic (ideational) and pragmatic (interpersonal) meaning (Lyons 1977: 588-591, Powell 1989: 193-194).

Now the nature of the impediment. We know that it will not do to regard situations of use as stylistically neutral occasions. Yet if stylistic variation is to be regarded as a pragmatic issue, then a decontextualization metric, as it has been conceived especially by lexical semanticists in a Chomskyan tradition, is only indirectly relevant to it. It is not quantity of context but type of situation of use that induces stylistic variation. Therefore, a decontextualization metric cannot be conceived of as a methodology which implements only quantitative reductions on the flow of language; the metric must also be sensitive to qualitative distinctions within that flow. Without the capacity to make qualitative distinctions, we cannot ask the following crucial question: is the pairing of propositional with expressive and social meaning merely the result of the individual history of individual words, or do configurations of a defineable nature tend to relate the ideational and the interpersonal meaning of a lexical item in specific types of discourse situations?

In learning how to pose this question profitably, we will also learn how to construct a decontextualization metric so that it works in concert with qualitative distinctions. In the meantime, we can profit from recent work in discourse analysis and in corpus linguistics which yields information about lexical (and other) patterns in discourse structures within situations of use. Some of this research shows that a word's semantic meaning, on the one hand, and its pragmatic meaning, on the other, may be selectively in focus according to the location of that word within a discourse.³ This information helps one to determine the extent to which a particular type of semantic meaning will pair with a particular type of pragmatic function in a given type of situation of use. Some encouraging results have transpired. For example, one can show that a number of adverbs having metalinguistic use as their semantic function also have interpersonal values which are predictable from their semantic meaning (Powell Forthcoming^{a, b, c}). As our understanding of language in situations of use increases, we may discover other semantic/pragmatic regularities that enrich our understanding of lexical meaning as an integrated cognitive and social phenomenon.

The following research falls within that objective in that it examines informally marked lexis, seeking an inventory of words and idioms, observing their discourse frequencies, and

then analyzing the composition of informally marked lexis for semantic/pragmatic regularities that may relate to the function the lexis serves in characteristic situations of use. As we shall see, four lexical properties are sufficiently recurrent to serve as constituents in patterned configurations: evaluative meaning, denotative vagueness, lexical intensity and lexical expressivity.

II. The database

My observations are formulated on the London-Lund corpus, a computer database some of which appears in a transcribed version in *A Corpus of English Conversation* (Svartvik & Quirk 1980). Choosing settings in which at least two participants are unaware of being recorded, I selected twenty, 5,000 running token-word length specimens of spontaneous conversation. All of the male and female speakers are British; and all are educated to university level, their ages ranging from c. 20 to c. 62 years. Only occupational and some familial relations are given.

III. Methods: defining context of situation and making a Lexical inventory

The first task was to define context of situation. Because my intention was to look for highly general commonalities in attitudinally motivated informal lexical choices, I required situational categories which also were highly general. Therefore, I chose a two-term (scalar) distinction into formal/informal categories.⁴ In an effort to avoid a circular definition which could maintain that an informal situation is simply one in which informally marked items appear, I sought parameters that are relatively independent of lexical constituency for defining context of situation. To this end, I drew upon Cheepen's (1988) two interrelated concepts of discourse goal and relative speaker status. I stipulated that an informal situation of utterance is one in which the discourse goal is predominately interpersonal and the relationship between participants is of variable status.

That is, even though their socioeconomic or familial status outside the encounter is fixed, their status internal to the encounter is one in which roles are exchanged to effect parity.⁵ In scalar contrast, a formal situation of utterance is one in which the discourse goal is predominately transactional and the relationship between speaker and hearer is fixed. Thus, the definition of the encounter requires that the official status of the participants external to the situation be maintained during the encounter.

Four conversations convened to execute academic business, these being interviews or structured group discussions in which speaker status is acknowledged and fixed. Sixteen other conversations functioned essentially as social occasions.

Although I could discern status distinctions, these did not appear to define the way in which the events proceeded to the extent that fixed status defines the formal occasions. I therefore categorized these sixteen as informal situations.⁶

In addition, I assumed a reciprocal sociolinguistic dynamic, one in which context of situation strongly influences the kind of meaning that is expressed (Halliday & Hasan 1976, Benson & Greaves 1981), and one in which the kinds of meanings expressed help to constitute or to reinforce that context of situation (Gumperz 1982, Schiffrin 1988). If this assumption were borne out, then it would follow that an informal context of situation would be one in which informally marked expressions would not be dispreferred or stigmatized and thus might appear.⁷

Having defined context of situation, I then undertook three readings, listing all words and idioms which are stylistically marked as informal or which function informally in context. In deciding whether a unit were informal, I asked myself whether it would call attention to itself (perhaps even expressly) or seem in some way inappropriate in a formal face-to-face speech setting, as it has been defined for this project. If the answer were yes, I inventoried the unit. Although I inventoried only informally marked items, I needed two other stylistic labels, neutral and formal, to serve in scalar contrast.

In conducting the inventory, I thought it useful to observe whether informal lexical uses in spontaneous conversational settings tend to be instantiated more by words or by idioms. Recognizing that set expressions, of which idioms are a subtype, vary in respect to which the meaning of the composite unit is a compositional function of the meanings and syntactic structure of its constituents, I nonetheless took non-compositionality (unqualified by gradations) as a working definition of idiom. I resolved borderline cases of various kinds in the following ways. I classified conventionalized compounds as words and phrasal verbs as idioms, and I omitted all social formulae, such as Good morning. The resulting idioms are lexemic, tournure and sememic (Makkai 1972, 1978). I classified some exclamatives as words and others as idioms. Word exclamatives are monolexic (Christ), compound-like (Good heavens), or consist of a recurrent frame containing an intensifier and/or possessive pronoun (Oh my word). Idiom exclamatives consist of comparatively more complex syntax: What in hell, Oh to hell with this for a game, What in God's name, Bless my soul. These exclamative categories do not accord in every respect with Makkai's (1985: 461) claim that all exclamatives are a special case of idiomaticity in that they are set expressions. I take his point, but I decided to subcategorize the set of exclamatives to remain methodologically consistent with a decision to classify compounds as words and phrasal verbs as idioms.⁸ This inventory then served a number of functions.

V. Results and discussion

A. Frequencies of informally marked items

First, I used the inventory to determine lexical frequency patterns which might affirm the viability of the sociolinguistic dynamic. In the 16 informal settings, the lowest token frequency of informally marked items is 13 and the highest is 69, the mean frequency being 38 (S.D. = 40%). In contrast, in the four formal settings, the lowest token frequency of informally marked items is 7, the highest frequency is 18. The mean frequency of marked tokens is 11 (S.D. = 55%). Since the sample number of formal settings is only 4, little may be concluded; however, the results are not unexpected: informal settings exhibit much higher frequencies of informally marked items. Thus, these results affirm that the assumption is a highly useful observational tool.

B. Distribution of informally marked items among speakers

The inventory was also useful in revealing which speakers used these marked items. Of the total number of 52 speakers in the 16 informal settings, only 3 speakers did not use informally marked items. In two (1.12 and 2.13) of the three settings in which one speaker (Speaker a and d, respectively) did not use informally marked items, the noncontributing speakers were aware of being recorded. In the third informal setting (1.8), the noncontributing speaker (Speaker B) left soon after the conversation began.

One can observe a different outcome in the 4 formal settings. From a total of 22 speakers, 8 did not use informally marked items. In addition, at least one speaker in every setting did not; in two settings, 1 speaker did not; and in 1 setting, 3 speakers did not. Again, the sample size is too small to warrant secure conclusions, but the figures are consistent with one's expectations.

I believe these frequency patterns, if confirmed by others, will be theoretically significant in that, if an informal context of situation is one in which an effort is made to maintain equality of speaker rights (Wilson 1989), then establishing and maintaining an informal tone through the use of informally marked lexis should turn out to be communally achieved. These results strongly suggest that this contention is valid.

C. Regularities in the composition and function of informally marked lexis

When conducting the inventory, I became aware of what I thought was a functional pattern in informally marked idioms. More often than not, they seemed to serve an evaluative function. I then subcategorized all lexical items in the inventory

which functioned evaluatively to determine whether there was a significant difference in the token mean percentage of stylistically marked words used evaluatively and the token mean percentage of informally marked idioms used evaluatively. The answer is a clear yes.

The token mean percentage of words that are both informally marked and used evaluatively is 23.9% (S.D. 17%), whereas the token mean percentage of idioms that are both informally marked and used evaluatively is 70.3% (S.D. 21.5%). Since idioms used evaluatively are also informally marked 79.4% of the time, it is frequency of occurrence that explains their salience in these settings. When this information is supplemented with results from a compositional analysis of these idioms, we will have taken a step toward establishing a statistical motivation for proposing this subclass of idioms as a functional prototype in the category of fixed expressions. This is a step worth taking; because, so far, all research on lexical prototypes has been carried out on stylistically neutral items.

Although the coincidence of informal marking and evaluative use is much lower in words than in idioms, a mean of 23.9% is sufficient to suggest that, in the vocabulary as a whole, informal marking may tend to coincide with evaluative use. If further investigations affirm these results, then one might provide a functional motivation for the pattern in the following way. Cheepen (1988: 120) maintains that all informal conversations have a loose macrostructure in which a story-like element is present. This story is dialogically constructed through "frequent uttering of matching evaluations of various aspects of the stories" In addition, these evaluations are opportunities in which speakers may express their solidarity for one another (1988: 83, 120). One can now appreciate why evaluative use and informal lexical marking tend to coincide: since evaluations are potentially threatening as well as solidifying speech acts, interpersonal risk is reduced through the use of situation-specific conventionalized units.

It should be emphasized that the mean of 23.9% has been calculated for token words that are used with an overt evaluative function in context. However, the word type (i.e. not token) inventory (Appendix) shows that some informally marked words (Category 2) are indirectly evaluative in that they denote socially sensitive referents. These are not figured in the token mean of 23.9% unless they have been so designated by an asterisk. Similarly, in Category 5, all exclamatives have the potential for evaluative function; some of these clearly did so function, and they were included in the token mean. One can see, though, that the potential for evaluative use is much greater than the actual token mean reveals.

An analysis of the word (type) inventory taken from the informal settings reveals other semantic/pragmatic regularities which consist of compositional configurations comprising the

following lexical properties: evaluative meaning, lexical intensity, lexical expressivity, and denotative vagueness. Referring now to the inventory, one can see the parts-of-speech breakdown within the categories:

- Category 1: informal and directly evaluative
- 2: informal and either directly or indirectly evaluative
- 3: informal, evaluative and intense
- 4: informal and intense
- 5: informal, intense and expressive (Sometimes these are also used evaluatively.)
- 6: informal, evaluative and expressive
- 7: informal and vague
- 8: informal, vague and evaluative
- 9: the miscellaneous category is one in which

informally marked words appear, but these do not also pattern with evaluative use or with intensity or expressivity or vagueness.

If one includes indirectly evaluative words and all words in the lists which have the potential for evaluative use, then these four lexical properties coincide either singly or in combination with informal marking in 156 of 178 (88.2%) of informally marked words in the inventory. Indeed, the conventionalization of these configurations also may be given functional explanation.

Expressivity and intensity serve a dual interpersonal purpose: they are attributes through which speakers may exhibit overt, personal involvement in an exchange while eliciting the sustained attention of a listener. We highly value animation in conversational settings. At the same time, we are also constrained by the online demands of spontaneous speech, and so we require vaguely denoting expressions which help us avoid awkward pauses that might result in a search for precise phrasing (Chafe 1982).

Evaluative use tends to coincide with intensity, expressivity and vagueness, because in colloquial speech, evaluation is not precise; rather it is unmistakably emphatic, the words tending to encode scalar extremes. A middling evaluation is too readily received as uncharitable in spirit, and a precise evaluation too readily taken as precious or pedantic. In either case, solidarity is jeopardized, the loose story-like macrostructure then requiring repair. These lexical configurations then are highly efficient encodings that are specialized for situation-specific needs. Moreover these results are strongly reinforced by a compositional analysis of the informally marked idioms.

Like all lexical tendencies, the patterns expressed are not fully generalizable: no redundancy rule will predict them for the vocabulary as a whole. But neither are the patterns unmotivated. In conclusion, a confident case can be made that the lexical composition of informally marked lexis is either in response to or is compatible with the functional needs of

of speakers engaged in informal conversations.

NOTES

¹The computer database, the London-Lund corpus, is available from the Norwegian Computing Center for the Humanities. I am grateful to Matthew Holsti for generous help with the statistical analyses and to Graham Good and Peter Quartermain for serving as my British informants. This project was supported by the University of British Columbia's Humanities and Social Sciences Research Grant S91-0515.

²Especially culpable are North American lexical theorists of two types. The first theoretical line develops from the interpretive framework of Katz & Fodor (1963), and it includes generative semanticists who write in reaction to interpretive semantics. The second theoretical line develops from various logic-based theories. Montague semantics (Montague 1974) inspires one such development.

³See Svartvik (1990) for an account and bibliography of work done on the London-Lund corpus and Schiffrin (1987) for a bibliography of work on discourse markers.

⁴The formal/informal distinction has been used not only to characterize aspects of field, mode and tenor (Halliday & Hasan 1976: 22-23; Benson & Greaves 1981 and refs.), but also to define the continuum of varieties that reflect differences in levels of formality. The continuum of varieties has been subcategorized in a number of ways. For example, Quirk *et al.* (1985) specify a five-term set of distinctions comprising (very formal), (formal), (neutral), (informal), and (very informal). Sometimes the label (colloquial) is used to define an informal range of spoken language use. The label (slang) also may be used to designate casual lexical use, especially that of a particular social group.

When defining tenor, some investigators (Leech, Deuchar & Hoogenraad 1982; Leech 1983; Brown & Levinson 1978; Goody 1978) may specify not only a formality scale but also include other interrelated scales such as those of politeness and impersonality.

⁵The notion of parity, or equal distribution of speaker rights, is one in which "any individual has an equal right (within conversation) to initiate talk, interrupt, respond, or refuse to do any of these. In other speech events rights are observed to be controlled more closely" (Wilson 1989: 20; see also Good 1979).

⁶The formal conversations are identified by the following numbers in the corpus: 1.1, 1.4, 1.5, 1.6, 1.8, 1.9, 1.11, 1.12, 1.13, 2.3, 2.4, 2.8, 2.9, 2.10, 2.13, and 2.14; the formal con-

versations are 3.3, 3.4, 3.5, 3.6. One conversation, (1.1) was quite mixed in function; some business motivated the occasion, but it got transacted in a very low key way; moreover, the event also involved essentially social exchanges from one friend to another, even though they were not professional equals. After some agonizing, I placed this conversation in the informal category, deciding to keep my eye on it to see how the lexical inventory would turn out: 44 informally marked tokens appeared.

⁷The use of informal lexis is, of course, only one characteristic of informal uses of language.

⁸However, if all exclamatives are counted as idioms, then the mean token percentage of idioms will increase accordingly. The mean token percentage of informally marked words that are counted as expletives is 33.3 (S.D. = 17.3%) in informal conversations, and 20.4 (S.D. = 16.7%) in formal conversations.

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Appendix

Informally Marked Words: Type Inventory from Informal Settings

Category 1: informal and directly evaluative

<u>Nouns</u>	<u>Adjectives</u>	<u>Adverbs</u>
claptrap	barmy	clodhopping (along)
dodge	high faluting	jolly
gibberish	hustly bustly	wobbling (great)
goodies	jolly	
grumble	lousy	
heyday	mingy	
palaver	piddling	
pin money	plum	
rubbish	posh(-er)	
shocker	ruddy	
thinktank	stropo	
	tricky	

Category 2: informal and either directly or indirectly evaluative

(The words denote socially sensitive referents. Starred items were used with evaluative force in context and were counted in the token frequencies.)

<u>Nouns</u>	<u>Verbs</u>
fucking	booze
hooey*	bum
loo	do (to wangle)
malarky*	fiddle*
nappies	pinch
nuthouse*	nick
pull (with management)	sack*
(a proper) shit	wangle
(the) shits	

Category 3: informal, evaluative, intense

<u>Nouns</u>	<u>Adjectives</u>	<u>Verbs</u>
crunch	grotty	battle
grot		tie (stop from reply- ing)

Category 4: informal, intense

<u>Nouns</u>	<u>Adjectives</u>	<u>Verbs</u>
hoohah	jampacked	crown
riot	jazzy	pack
		poke

(continued)

Cat. 4, cont.

rumble
scotch
shove
stuck (for ashtrays)
throw (a party)
whiz
whoosh

Category 5: informal, intense, expressive

(Exclamatives/emphasizers/expletives used as various parts of speech. Sometimes they are also used evaluatively; all have the potential for evaluative use.)

bam	God	(oh) heavens
blimey	God Almighty	hell
bloody	Good God	bloody hell
Christ	(oh) God	the hell
(oh) Christ	God damnation	Lord
cor	Goddammit	(good) Lord
crikey	(my) God	(oh) Lord
crumbs	Thank God	Jesus
damn	goodness	(oh) Jesus
damn(you)	(oh) goodness	shit
dammit	(oh my) goodness	(oh my) word
damned	(my) goodness (me)	wow
(oh) dear	gosh	<u>Adverb</u>
fucking	(oh) gosh	
(oh) Gad	gracious	goodoh
(oh) golly	good heavens	

Category 6: informal, evaluative, expressive

Names and categories for people

ass	Nips
bastard	nitwit
bloke	(that) number
bugger	poppet
chappie	shocker
(old) chum	sparks
clot	sprog
devil	syphlitic nutter
dunderhead	(poor old) thing
gaffer	Wallahs
gasbig	
(big) head	The following were used descriptively:
ilk	
kid	guy
kiddy	mummy
looney	upper crust
ninny	

Category 7: informal, vagueNouns

bit(s)
 (solid fuel) job(s)
 kick
 lots (i.e. 2 political groups)
 nit (an area of work)
 pots (of money)
 stuff
 thing₁ (special interest)
 thing₂

Adjectives

blobby
 foggiest

Category 8: Informal, vague, evaluativeNoun

muddle

Verbs

work (i.e. it succeeds)
 muddle
 wobble

Adjectives

wolly
 wolly minded

Category 9: MiscellaneousNouns

digs
 (a good) read
 mo (minute)
 (our) Rake (The Rake's Prog.)
 telly
 (a) wiggle (twisting route)

These were used descriptively,
 but they have potential for
 evaluative use:

brain drain
 lark

Adjectives

jaggly
 laky
 marshy
 sandspitty

Verbs

chuck
 drift (& ironical)
 drop₁ (give up)
 drop₂ (come)
 fiddle (with camera)
 stick
 trot

Adverbs

natch (naturally)
 twisty

The Construction of Gender in Tagalog Discourse

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The Cultural Construction of Gender

Stuart Chase, in the foreword to Language Thought and Reality says of Benjamin Lee Whorf's views on language and culture: "He grasped the relationship between human language and human thinking, how language indeed can shape our innermost thoughts. All observers are not led by the same physical evidence to the same picture of the universe" (1956: v). A poignant illustration of this is the reaction of the first Hmong refugee who came to Lansing, Michigan in 1976. Teng Vang said of his initial experience of the United States: "Everything here is upside down." Whorf's premise that one's life world is influenced by the structure of one's language emphasizes the importance of examining how gender relationships are realized in each culture as well as whether or not women and men experience and construct their linguistic worlds similarly or differently in any given culture. More specifically, this essay is a conceptual examination of how Tagalog-Filipino women and men construct their linguistic worlds. Directions that might be taken to better understand the construction of gender in Tagalog discourse are discussed.

The first thing to keep in mind about gender is that by gender I mean not just that marked in grammar, lexicon, and syntax but the broader psychological and social similarities and differences that are enacted by women and men within a given culture. If there is any limitation in Whorf's examination of linguistic relativity, it is that he didn't examine how perceptions of culture are manifested in interactive discourse. Through discourse analysis it is

possible to systematically examine relationships in same gender/mixed gender dyadic pairings.

As an illustration of the limitations of a study based upon lexicon alone, an essay by Estrada examined sexism in Tagalog in the lexical domain (1981). Estrada conducted a careful study of kinship terminology, forms of address, terms of endearment, sexual references, professional and occupational terminology, children's acquisition of he/she in English, swear words, religious references, and terms from folk medicine. Although her study is careful, her conclusions are overly robust. Based on the limited examination of a few categories of lexicon, she concludes that Tagalog is an "androgynous" language and not at all sexist (1981: 459). She says further that "Tagalog need not undergo the tortuous purge that English, with its heavily masculine bias, is going through" (1981: 457-8). We can respond to Estrada's claim that while lexicon is an important manifestation of potential sexism in any culture, research on sexism needs to take the next step and examine how women and men actually use language in their relationships with one another.

Whorf also discusses "overt classes" and "covert classes" for marking gender (1956: 69). While the criteria for covert classes are somewhat ambiguous, the metaphor is insightful for the study of gender. This paper seeks to articulate a taxonomy for marking these less obvious systems (Whorf's "covert classes") which potentially manifest gender similarities and differences in interactive communication.

High Context Culture and Gender

A second theoretical framework that has important implications for a study of the construction of gender in Tagalog is Edward T. Hall's conceptualization of cultural contexts. Hall theorizes a cultural continuum ranging from high context culture, on one end, to low context culture on the other. Cultures may be described in terms of points occupied along this continuum. A "high context" culture is

one in which, according to Hall (1976), group-orientation is the dominant value. In Hall's terms, the "we is raised over the I." This implies that the needs of the individual are always overtly subordinated to the needs of the group. Group solidarity is regularly reinforced in subtle ways. Consequently, the "rules" of membership are clear to participants and need not be negotiated. Roles are fixed in what is largely a closed/positional system (Bernstein, 1974). Conflict is seen as destructive and undermining and is avoided at all costs (Ting-Toomey, 1985). Because of the importance of preserving orientation to the group, communication style is implicit and indirect, paralleling restricted code (Bernstein, 1974). What is left unsaid is often more important than what is actually said.

A low context culture is one in which the orientation is to the individual. In Hall's terms, the "I is raised over the we" (1976). While the group may be important, the needs and aspirations of the individual are given primacy. Rules and identities must be negotiated. Thus low context cultures are said to be open/personal (Bernstein, 1974). Conflict is viewed positively as a refreshing agent of change which revitalizes and introduces new ideas (Ting-Toomey, 1985). Because roles are not firm and are subject to negotiation, communication style of necessity is direct and explicit paralleling "elaborated code" (Bernstein, 1974). In low context cultural systems, words represent truth and power.

Three other related pairs of constructs, which align with Hall's context dichotomy, have been generated. These are: homophily/heterophily, allocentrism/idiocentrism, and individualism/collectivism. In general, homophily is defined as the "degree of perceived similarity" while heterophily is the "perceived degree of difference (Dodd 1991: 229). Homophily is partitioned more precisely by McCroskey, Richmond, and Daly (1975) into (1) appearance homophily, (2) background homophily (3) attitude homophily (4) value homophily and (5) personality homophily (in Dodd 1991: 229). The ideal relationship is one which is "optimally

heterophilous." This means interactants share similar social characteristics but that they have access to additional knowledge and information (Dodd, 1991: 236).

Individualism and collectivism refer both to cultural goals as well as individual traits. Individualism can describe cultures in which the goals of the individual regularly take precedence over those of the group (like low context culture), and it can also suggest traits of personal self reliance and nonconformity. Collectivism refers both to group orientation (like high context culture) as well as to the personal need for interdependency, the need for sharing, and the susceptibility to social influence (Triandis et. al., 1988). Kim characterizes allocentrism as a "high interdependence, interpersonal sensitivity, conformity, readiness to be influenced by others, mutual sympathy, wanting to deal with known persons even if they are incompetent, and self-sacrifice" while idiocentrism is defined as "independence, low conformity, little sympathy, choice of experts over friends, and little readiness to sacrifice for others" (Kim, 1990). Based on this description, Philippine culture can be characterized as "high context," "homophilous," "allocentric," and "collectivist." Exactly what implications these characterizations have for gender relations need to be examined.

Brown and Levinson (1987) have articulated an insightful schematic for face relations based on culture. Bresnahan (1991) shows how face relations are played out in several specific contexts of Tagalog culture. **Hiya** is a two-way interpersonal cultural constraint oriented both toward the self and the other. **Hiya**, as a guide for interaction, requires self-effacement and manifestation of respect for the other and sensitivity to the ego needs of the other, but it is ultimately an indirect means of self protection from undue scrutiny and criticism. Criticism ranges from **tsismis** (gossip) to social exclusion of those exhibiting deviant behavior. **Tsismis** is one cultural mechanism for enforcing the **hiya** system. One can easily see in a high context, homophilous, allocentric, collectivist culture how

face would become an important relational principle determining choice of interactive style.

Errington's Hypothesis: Gender in Southeast Asian Culture

Austronesian languages have generally been characterized as more or less "egalitarian" because they minimally mark natural and grammatical gender. The popular claim made about Austronesian goes something like this--Austronesian languages, before contact with Western languages, did not show distinctions based on gender. The claim continues that not only were pre-contact Austronesian languages egalitarian, but also that these cultures were egalitarian. For example, in the previously cited article on sexism in Tagalog, Estrada claims that "all accounts of Philippine society picture a sexually egalitarian culture with no particular bias in favor of one sex. Tagalogs should perhaps be grateful that the battle of the sexes need not be fought" (1981: 457).

When one looks at a language like Tagalog today, this historical claim makes little sense because contemporary Tagalog has been profoundly influenced by Indo-European language contact. Although gender distinctions in Tagalog are not conveyed through pronouns and agreement, they are manifested through such mechanisms as honorifics and kinship, nicknames and humor, social stratification and limitations on access to power. Whether or not any portion or all of these systems were borrowed from another language is a moot point because they have become totally indigenized in today's Tagalog. I do not mean this to be a reductivist argument which somehow minimizes the importance of historical reconstruction of Austronesian. I am arguing instead for an analysis of interaction which of necessity must be synchronic.

Errington (1990), in the introductory essay to a provocative collection of essays on gender and power in Southeast Asia, addresses this claim of egalitarianism. She

insightfully observes that:

We in Euro-America tend to identify power with economic control and coercive force, with activity, forcefulness, getting things done, instrumentality and effectiveness brought about through calculation of means to achieve goals. The prevalent view in many parts of island Southeast Asia, is that to exert force, to make explicit commands, to engage in direct activity--in other words to exert "power" in a Western sense--reveals a lack of spiritual power and effective potency and consequently diminishes prestige (1990: 5).

We westerners are told that women in Southeast Asian cultures control the purse strings and practical matters. Thus, we assume that women have power because we see power in economic and instrumental terms. Errington claims, and I think correctly, that when one examines hierarchies of prestige within Southeast Asian cultures, women are regularly excluded from the highest forms of spiritual prestige. In contrast to Western values, control of the purse strings and instrumentality are the most menial forms of activity in these cultures, tedious duties relegated to women to free men for the pursuit of higher goals (Errington 1990: 6-10). Thus, we in the West and the graduate students from Southeast Asia that come under our influence in U.S. universities, need to ask how power and prestige are enacted locally rather than transferring our own conception of power inappropriately to other cultures.

Aguilar agrees with Errington's call for a re-examination of assertions about egalitarianism in island Southeast Asia. She notes that the most significant empirical studies, particularly those examining the status of women at the low end of the socio-economic spectrum, have found "a rigid gender division of labor at the heart of the family" (1989: 527). Aguilar concludes that the woman's pursekeeping function is not adequate evidence for matriarchy. Social scientists agree that there is gender inequality in the public

sphere in the Philippines as well as in the family. Thus Aguilar cautions that the claim for complementarity between the genders in the Philippines is unfounded. Exactly how social construction of gender affects verbal interaction between Filipino women and men has only been minimally examined.

Gender hypotheses in U.S. culture

Gender research in language has been a much studied interdisciplinary area in the United States. A growing body of hypotheses have been replicated and confirmed in systematic gender research since the innovative and controversial 1975 work of Robin Lakoff, Language and Woman's Place. Whether or not the findings of these studies, which were based on U.S. culture, can and should be extended to any other culture is an important methodological question. However, these findings can serve as critical points of comparison between gender relations in the U.S. and other cultures. What are some of the claims about the ways that women and men communicate in the U.S.?

Maltz and Borker (1982) studied the early gender socialization of girls and boys and how early socialization was manifest in later linguistic relations. They claim that boys learn to use language to assert dominance while girls use language to maintain relationships. This dichotomy for language use is a common theme reiterated across the gender literature. These differences observed in the talk of girls and boys extend into maturity so that women and men manifest predictable linguistic behaviors including the following. (1) Women generally use questions as a way to maintain conversation while men use questions as a way to get information. (2) Women usually acknowledge the contributions of previous speakers in conversation while men tend not to acknowledge previous speakers. (3) Women see verbal aggression as personal while men see it as a means for taking control. (4) Women prefer to develop

conversational topics progressively and collaboratively while men prefer to stick to narrow singular topics. (5) Women listen to problems and give assurance while men give advice and act as experts (6) Women use interruptions to support while men use interruptions to control (Maltz and Borker, 1982).

According to Borisoff and Merrill (1984), the socially sanctioned stereotype for women in U.S. culture is that they should refrain from any overt expression of power. Women, in American culture, are rewarded for being compliant. This results in women being ignored, dismissed and interrupted. If they try to be more assertive, they are charged with being "manly" and "unfeminine." The stereotype for men in American culture is that they are direct and confrontational. They are interruptive and not good at disclosure. Men are not good at attending to the messages of others, according to this stereotype. Men exercise power overtly while women are socialized to exercise power covertly through passive-aggressive strategies which Borisoff and Merrill call the "tyranny of the weak."

An interesting work which summarizes much of what we know about U.S. gender relations is Tannen's recent book, You Just Don't Understand (1991), which attempts to popularize research. This book is both intuitive and insightful and yet early reviews have criticized Tannen for unfairly perpetuating unfounded gender stereotypes. In a review in The Chronicle of Higher Education, Ellis (1991) charges that "Tannen drags out the old stereotypes that women are oriented toward cooperation and relationships while men are adversarial and hierarchical. Research indicates that gender differences dissipate as males and females converge on situational definitions" (July 31, 1991: B2).

Suggestions for studying gender relations in Tagalog

Although these hypotheses based on gender relations in U.S. culture need to be critically examined before they are

applied to Philippine culture, they can serve as a basis for identification of appropriate hypotheses for Tagalog gender interaction. The following social-interactive categories have been evocative of gender differences in U.S. culture. It is suggested that these broad strategies might serve as the basis for the development of hypotheses that are specific to Tagalog-Filipino culture.

A Taxonomy of Discourse Strategies and Speech Acts

Are there gender differences which can be associated with:

1. verbal aggression
2. escalation and resolution of conflict
3. differences in conversational goals
4. interactive role negotiation
5. topic control and shift
6. face relations and politeness
7. use of strategies for repair
8. use of strategies for uncertainty reduction
9. use of strategies of disclosure
10. use of strategies of deception
11. use of verbal support strategies
12. use of strategies for solidarity and intimacy
13. use and meaning of silence
14. use of humor
15. use of strategies of persuasion & compliance
16. use of metaphor
17. use of laughter
18. Speech Acts: use of apologies, questions, requests, directives, interruptions, intensifiers, hedges, continuers, confirmatives, pauses, disclaimers, profanity and slang.

Conclusions

Tagalog, as a high context culture, suggests that strategies of indirection are regularly preferred in all contexts, but especially in contexts that might engage face.

Based on observations like Rokeach's similarity/attraction hypothesis (1968) or Gudykunst's uncertainty reduction hypothesis (1983), it is reasonable to assume that interactions between women and men might be face threatening in any culture. Thus, overt expression of gender dominance or sexism would be suppressed in face sensitive high context cultures like Tagalog culture. These implicit rules of gender behavior, in all likelihood, would only be indirectly expressed in verbal interaction and would not be easily identified by either insiders or outside observers. The taxonomy of verbal strategies and speech-acts presented in this paper suggests a number of approaches that might be taken to begin to understand similarities and differences in how Tagalog Filipino women and men communicate.

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Discourse, Style, and Measurement: Narrative
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An interplanetary observer, having viewed the discipline of stylistics, that peculiar intersection of linguistic science and literary scholarship, 3 decades ago, might return today expecting great insights and marvelous findings to have come to light in the intervening period. Such expectations would soon be dampened, however. Despite the quiet confidence, in some cases outright ebullience, reflected by the contributions to Sebeok (1960), stylistics today, like NASA, seems to exude an atmosphere of failed hopes, dampened promises, old controversies past caring about, and a general sense of weariness.

How has this situation come about? It cannot be due to weariness in the two parent disciplines. Linguistics has been nothing if not lively since the late 1950's (see, for example, Pinker, 1991), and literary theory has been in a rich, if somewhat confusing to an outside observer, state of ferment for more than a decade. Yet despite the optimism of early advocates of generative stylistics, their efforts have been quite justifiably, I think, dismissed by Stanley Fish (1981). One might argue, as Michael Toolan (1990) does, that the generativists' efforts failed because of their fixation on sentence-level phenomena. But efforts within text linguistics (van Dijk, 1972; de Beaugrande & Dressler, 1981), though they have produced a great many pages, have not led to models of linguistic structures beyond the sentence. Expansion of these largely European concerns to the realm of "pragmalinguistics" (van Dijk, 1977; Toolan, 1990) has produced still more print but as yet little sound science.

To be sure, there have been some bright spots. Halliday's (1971) exploration of Golding's *The Inheritors* constituted a powerful beginning but one which does not appear to have led to a significant body of stylistic analysis within the school of Systemic Grammar or in literary stylistics. Because Systemic Grammar was never bound to the sentence

as generative grammar seems to have been, it was not surprising to see Halliday and Hasan's (1976) *Cohesion in English* taken up by researchers in search of a model of linguistic structure beyond the sentence. But it is safe to say that this book has had more influence on composition studies than on literary stylistics or the general study of style in language.

Closer to the mainstream in American linguistics, Chafe and his collaborators (1980) have carried out a number of excellent, controlled studies. Examples can be found in a number of volumes edited by Tannen, especially Tannen, 1984.

Since style is, in large part, a social phenomenon, we might expect the discipline of sociolinguistics to have led to interesting approaches to style in language. We do find the beginnings of such approaches in the work of Labov and his colleagues (Labov & Waletzky, 1967; Labov, 1972a, 1972b), but the Labovians have published surprisingly little on style for its own sake.

I would argue that part of the reason for the failure of progress in stylistics lies in the failure of stylistic analysts to get beyond the field's beginnings in literary scholarship. That is, the methods and rhetoric of stylistics are still locked within the Aristotelian models that dominate literary scholarship to this day. In this mode of inquiry, the scholar conducts a great many observations (whether such observations come from folkloristic recording of naive subjects in the field or perusing texts in the library is of no consequence), acquires a certain amount of data, searches for patterns emerging in the data, interprets those patterns, usually in the context of an implicit theory, and returns to the data for evidence to support the scholar's interpretation. Under these sorts of procedures, sampling and data gathering tend to be opportunistic, analysis tends to be selective, and interpretation tends to be impressionistic.

Consider an extreme case. In arguing that the 430-word poem "Shall I die? Shall I fly" ought not to be attributed to Shakespeare, Donald W. Foster noted that the poem does not contain even one occurrence of the word *the*. According to Foster, a colleague of his calculated that the chances of not finding *the* in a poem by Shakespeare are "a little better than one in two million" (Foster, 1987: 64). To be fair, Foster has

other, better reasons for rejecting the poem as Shakespeare's. But his arguing for rejection of "Shall I die?" on the basis of word frequencies is a good example of selective analysis. For the word *the* is the most common word in English, having a standard frequency index of 88.6 (Carroll, et al, 1971). We could expect to find *the* about every 10 or 11 words in connected English discourse. In "Shall I die?" we might expect to find about 40 occurrences of this word. Far from proving that Shakespeare did not write the poem, the absence of this common word proves, if it proves anything, that no native speaker of English wrote the poem. Of course, there is ample evidence that the poem was written by a native speaker of late-Renaissance English. The point is that Foster's example is irrelevant.

What is missing from these sorts of procedures, procedures that I think are all too common, if usually less extreme, in stylistics, are systematic sampling, the use of control groups, consideration of all the data, and interpretation by the use of the method of alternative hypotheses.

Even when stylistic analysis is carried out systematically and rigorously, the acceptance of a rhetoric more suited to advocacy than science can lead to undefined results. For example, the powerful analysis of theta roles in *Moll Flanders* by Elizabeth Closs Traugott and Mary Louise Pratt tells us a great deal about Defoe's novel, but does it tell us anything special about that particular work? Similarly, Toolan's quite systematic studies of Faulkner's use of personal pronouns or his use of verbs ending in *ing* tell us much about *Go Down, Moses*. But the reader is left with some disturbing questions at the end of Toolan's voluminous analysis: How are we to know whether the observations on V-*ing* in *Go Down, Moses* are typical of Faulkner's style in general or specific to this one novel? In fact, how are we to know whether Faulkner's use of V-*ing* differs from that of Hemingway, or, for that matter, any ordinary speaker of English?

This paper is a report on work in progress that seeks to make stylistics more scientific. In this study I hope to carry on the development of a sociolinguistically realistic begun by Labov & Waletzky (1967) and to apply the techniques of statistical analysis and hypothesis testing that have begun to be used in sociolinguistics but which have really become

common only in the linguistic fields of psycholinguistics and applied linguistics (Hatch & Farhady, 1982). In time I would hope that this study could attain the degree of rigor that Biber & Finegan (1989), using different analytic techniques on slightly different objects of study, were able to reach.

The domain of this study is narrative, discourse that recounts a sequence of events, in English. Sources of narratives include oral narratives by adult speakers of English, samples from 4 works of American literature written between 1924 and 1931, and the writing so college freshmen. Narrative was chosen primarily because it was necessary to limit the area of the study and focusing on one mode of discourse presented a principled way to do so. Narrative also had the added advantage of being both an oral and a written form. Thus, the question of whether spoken language differs fundamentally from written language could be addressed once again.

In Winter term of 1991, an entire section of English 102, Freshman English, wrote an essay that began with Labov's (1972b) "Danger of Death" question: "Have you ever been in a situation where you thought you were in serious danger of being killed. . .?" In case some students had never been in such a situation, they could also choose to write on another question: "Have you ever been in a fight?" Eventually, 19 essays, amounting to a total of 6,891 words, were included in this study.

Choice of literary narratives was accomplished somewhat differently. Ten randomly selected passages, from 1 to 2 pages long, were selected from Ernest Hemingway's *A Farewell to Arms*, F. Scott Fitzgerald's *The Great Gatsby*, Edith Wharton's *The Old Maid*, and William Faulkner's *Sanctuary*. Originally, I had planned to sample one of Faulkner's acknowledged masterpieces, *As I Lay Dying* or *The Sound and the Fury*, but Faulkner's experimental use of stream-of-consciousness techniques and interior monologue in those works made their inclusion problematic at this time. Toolan's excellent study of Faulkner's style contains an extensive discussion of the difficulty of deciding even such mundane questions as what constitutes a sentence in Faulkner's more experimental works.

For the literary works, I wanted randomly chosen passages of connected discourse. Page numbers from each

work were chosen randomly in advance. If, on inspection, a page was found to be mostly dialogue, it was rejected and I moved on to the next randomly chosen page. If a page contained at least one-half narrative, it was chosen, minus dialogue, for analysis. The sample of literary works is, technically, a stratified random sample. The 10 passages from Hemingway contained 3,218 words, from Fitzgerald 2,664 words, from Wharton 2,126 words, and from Faulkner 3,120 words.

Five oral narratives, or narratives with oral sources, were also included in the sample. One was a story, given spontaneously in the course of a dialect survey by Buck, owner of an insurance agency in Hillsboro, Ohio, of how a person who did not know him had deduced Buck's residence from the way he spoke. A second oral narrative was a 470-word passage from Stephen Cruz's account of his experience with the American dream and the world of work (Terkel, 1980). A third was a 489-word sample from Charlie Sabatier's account of his struggle for civil rights for the handicapped (Gwaltner, 1986). The fourth was Rose B.'s account of being in a car wreck (Labov, 1972b). And the fifth was Roberta Victor's account of her life as a prostitute (Terkel, 1972).

The linguistic variables chosen for study had a variety of sources. For example, students in writing classes are still advised to avoid the use of the passive. Givon (1979) speculates that passives, especially full or agented passives, should be relatively rare in spoken English. The passive, at least the full passive, is primarily a feature of literate English. For this reason, I decided to count both full and short passives in my samples. Givon (1979) also argued that sentences with referential indefinite NP's as subjects, as in *A man is waiting for you outside* as opposed to existential presentative sentences like *There is a man waiting for you outside*, are impossible in most language, and while languages like English and Hebrew that have long literary traditions allow such sentences, they should be comparatively rare even in languages that allow them. Hence, I decided to count referential indefinite NP subjects.

Because the relative abundance of coordination and subordination has been an issue in characterizations of oral versus written style, I counted both coordinate structures and

embedded sentences. I decided to count all occurrences of coordinate conjunctions, whether the conjoined structures were clauses, phrases, or individual lexical items. I also counted clauses conjoined by semicolons and by comma splices. Measuring subordination is more theory dependent. Here, I decided to follow the model of classical TGG syntax (for example, Akmajian & Heny, 1975) and count every occurrence of every S node that was not rooted (Emonds, 1976), whether the surface feature was a full clause or a reduced clause.

Because sentence length is often cited as a marker of individual style, I measured mean sentence length in each sample.

From my own intuitions, I decided that the *get*-passive, as in *John got arrested last night*, which I consider a kind of medio-passive structure, occurred frequently in oral English but rarely in writing. Accordingly, I tried to count *get*-passives in the samples. Similarly, my intuition that *that*-clauses serving as subject NP's which have not been subject to extraposition, as in *That the ghost appeared surprised me* as opposed to the more usual extraposed form *It surprised me that the ghost appeared*, mark a literate style caused me to look for unextraposed *that*-clauses. Finally, because Toolan devoted so much of his book to Faulkner's use of verbs ending in *ing*, and because I wanted to compare Faulkner's practice to that of other users of English, I counted such *-ing* forms.

First, we can deal with negative findings. Despite my intuition that unextraposed *that*-clauses mark a literate style and are rare in oral narrative, I was unable to test this hypothesis because no such clauses occurred in the entire corpus of 20,266 words. I suspect that the absence of this sort of clause is due to the choice of narrative as the object of study. Had I chosen expository prose, I should probably have found at least a few instances of these clauses.

Similarly, Givon's speculation on the rarity of referential indefinite NP subjects is supported: there were none of them in my samples.

Get-passives were also quite rare, probably because most of the samples were from written narratives. Three of the 19 freshman essays contained one occurrence each of a *get*-passive. One of the oral narratives, the only one that I collected personally, that by Buck, had one *get*-passive. I suspect that adding more oral narratives, as I plan to do,

would lead to more such structures. We might offer these results as weak support for the bit of lore among composition teachers that their students tend to write in a sort of quasi-oral style.

Results for linguistic variables that appeared more than sporadically are given in the tables (Appendix).

Givon's contention that full (agented) passives are rare in speech was certainly borne out. We see that 80% of the oral narratives contained no full passives, as did 77% of the literature samples and 63% of the freshman essays. Interestingly, the differences among these proportions are not significant.

Short (or agentless) passives are much more common. Only 25% of the total sample contained no occurrences of these. And 32% of the freshman writings contained 2 or more short passives, as did 40% of the oral narratives. Here, the interesting thing is that 60% of the literature samples had 2 or more short passives. Although the differences among proportions approached statistical significance, the results are still not significantly different across the three sources of narratives.

The tendency to favor coordination at the expense of subordination has long been counted as a mark of an oral style. However, Beaman (1984) showed that the subordinate/coordinate distinction does not match well with the literate/oral typology. Instead of a dimension of orality versus literacy, Beaman found that level of formality accounted for the relative proportion of subordinate and coordinate structures. For coordinate structures, we see here that the proportions do not differ significantly among freshman, literature, or oral samples. The same is true of proportions of embedded sentences.

For occurrences of verbs ending in *ing*, we see that the practices of literary authors, including Faulkner, whose use of *V-ing* was tabulated by Toolan (1990), do not differ significantly from those of college freshmen or oral narrators. When we look only at the literature samples, differences among the 4 authors approach significance ($p=.0559$), but Faulkner (mean=31.7 per thousand words) does not differ significantly from Hemingway (mean=16.7), Fitzgerald (mean=25.0), or Wharton (mean=23.3).

In order to carry out a more fine grained analysis, I calculated the number of the more frequent features per thousand words for each sample and used the Analysis of Variance (ANOVA) to test for mean differences among the three groups--freshman, literature, and oral narratives--and among individual authors. I also tested for intercorrelations among the variables chosen for study. For the most part, such correlations were slight. The number of embedded sentences per thousand words showed a correlation of .399 with the number of verbs ending in *ing* per thousand words, which reflects a tendency of all authors, especially writers, toward copious use of present participle phrases. As might have been expected, the number of embedded sentences per thousands correlated negatively ($r = -.405$; $r^2 = .164$) with the number of coordinate structures per thousand words.

Examining the occurrence of linguistic features per thousand words by source, we find that freshmen, literary authors, and oral narrators did not differ significantly on short passives, coordinate conjoinings, or verbs ending in *ing*. This last result I interpret as calling into question the basis for Toolan's focus on such verbs. The occurrence of short passives per thousand words approaches significance ($p = .0549$). In other words, these data suggest that literary writers (mean=8.8 short passives per thousand words) use this feature more than do freshmen (mean=5.0) or oral narrators (mean=2.4).

Statistically significant differences appeared in sentence length ($p = .0075$), where freshmen wrote shorter (mean=14.7 words) sentences than literary authors (mean=19.4). Though sentences were shortest in the oral narratives (mean=12.4), they did not differ significantly from either of the other groups. Looking only at the literature samples, we see that Hemingway (mean=13.2 words per sentence) wrote significantly shorter sentences than Fitzgerald (mean=21.8) or Wharton (mean=24.7). Despite Faulkner's reputation for long sentences, his (mean=17.9) are not significantly longer than Hemingway's or shorter than Fitzgerald's or Wharton's.

The number of embedded sentences per thousand words also differed significantly among the groups. Surprisingly, the literature samples (mean=54.8 embedded sentences per thousand words of text) were significantly lower than the

freshman samples (mean=72.9). The oral narratives were also high (mean=72.0), though not significantly higher than the literature samples. When we look only at the literature samples, we find that the differences among authors for this feature are significant ($p=.0483$), with Hemingway (mean=43.6) using fewer than Faulkner (mean=54.9), Wharton (mean=58.7), or Fitzgerald (mean=62.0), but pairwise comparisons do not show that any one of these authors differs significantly from any other.

Directions for Future Research

The present study needs to be expanded in a number of directions. First, the number of oral narratives needs to be expanded, especially through the addition of more narratives recorded in the field from speakers who come from a number of sociolinguistic backgrounds.

More important, the study is by its very nature a multivariate study. Experience and common sense both tell us that differences among individual styles in language use are not likely to be captured by concentrating on single characteristics. In fact, this study demands a form of statistical analysis known as discriminant analysis, a set of techniques used to determine group membership and goodness of fit for membership criteria. This study is reported as a series of univariate analyses because multivariate statistical software was not available to me at the time of writing. This situation is being remedied, and I look forward to presenting multivariate studies at the next LACUS Forum.

Eventually, I hope to come up with a single numerical index of syntactic variation that can be used to capture stylistic differences. In the distant future, I suspect that fractal analysis, if it can be adapted for this sort of abstract analysis, may help to capture stylistic variation.

Finally, I would like to add linguistic variables to these analyses and would welcome any suggestions from members of LACUS.

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PHASAL ANALYSIS IN THE DESCRIPTION OF ACADEMIC DISCOURSE

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I will be focusing today on the concept of phase and the new perspective it offers on the structure of academic discourse. The construct itself derives from Communication Linguistics, an extension of Systemic Grammar. Communication Linguistics is a recent development by Michael Gregory and colleagues at Glendon College, York University, Toronto. Within this model, the focus remains on situational as well as codal features and the connection between the two. The tri-stratal organization of language is also recognized. Although I won't be talking in any detail about situational influences on codal choices today because of time limits, the influence of field, tenor and mode is not only recognized but forms an integral part of my own research. Also, I will be concentrating only on two strata of the code in relation to the construct of phase, but tri-stratal organization is assumed.

Phase then is a construct that is designed to show how strands of discourse resemble each other in terms of semological and morphosyntactic choices. Gregory introduced the concept of phase in 1983 where he described it as characterizing "those stretches of text in which there is a significant measure of consistency in what is being selected ideationally, interpersonally, and textually" (Gregory, 1983:127). Phases are also identified on the basis of morphosyntactic criteria since manifestations of these metafunctional components in the morphosyntactic stratum also show great consistency within any one phase. It is not only ideational considerations of process and participant types, interpersonal choices of mood, modality and attitudinal elements as well as textual devices that reveal consistency within a phase. These choices are also reflected in clear patterns at the morphosyntactic level. This is not to say that all instances of a phase show identical morphosyntactic patterning, but that there are similar selections made at the middle stratum. So, in identifying and differentiating phases there are two criteria with which to do so: semological and morphosyntactic.

A phase describes different strands that recur throughout a language event and are interwoven to form the discourse plot of that event. Phases can recur anywhere in a piece of discourse and phasal analysis allows the researcher to identify the strands

that show consistency in semological and morphosyntactic choice and not be tied to linear sequence, thus revealing the discourse structure more accurately than configuring it in terms of beginning, middle and end. Phases are designed to show how different parts of a text relate to each other in terms of semological and morphosyntactic choices and how, taken together, they structure an instance of language. In phasal analysis the purpose is to show that there are patterns in a discourse, such as a university lecture, that are based on codal selections.

When one actually sits down with a piece of text, what one finds is that certain strands keep recurring and are interspersed with others so that there is a continual interweaving of strands as the discourse unfolds. When we speak, or write, for that matter, we don't just begin a topic, talk about it and then conclude it before going on to something else; our discourse is composed of sub-topics which are introduced, discussed, summarized, returned to and interspersed with other sub-topics which are announced, discussed, and exemplified.

In order to identify phases it is necessary to go through a text, line by line, analyzing each semologically and morphosyntactically. Going back over the analyzed sentences reveals definite patterns in terms of codal choices. And these patterns are distinct from each other so that separate phases can be differentiated. Once phases have been identified they can be numbered so that there can be, for example, phase 1 a, b, c, d, with the letters representing the recurrence of the phase no matter where it appears in a text. We can also label - give names to - the phases to reflect the purpose each serves in a particular discourse. I have chosen to do this with my corpus because the labels indicate the types of strands that seem to surface with great consistency in university lectures across disciplines.

Having briefly discussed the construct of phase, I want now to illustrate the type of description it offers in relation to one registerial variety - university lectures. I will be focusing today on only one part of my research - academic spoken discourse - and more specifically on three first year lectures, drawn from three disciplines: Engineering, Economics and Sociology. This is a segment of a larger project in which I have been examining both spoken and written academic discourse from a variety of disciplines to determine the similarities and differences across disciplines in one mode and between the written and spoken modes, within any one discipline. The long-term goal is to arrive at a typology of academic discourse.

The discussion which follows is not meant to be definitive for although I have looked at many lectures and textbook selections, the corpus on which descriptions are based is still not large

enough for that. What I am interested in exploring today is the type of description that phasal analysis offers in relation to this linguistic variety.

I will focus on some of the more characteristic semological and morphosyntactic features of the phases that have surfaced across disciplines in order to show not only the macro- structure of lectures configured in terms of phases but also the micro- features that distinguish each of them. The semological description will centre on ideational, interpersonal and textual choices, that of the morphosyntax will concentrate on realizatory patterns that mark each phase. I will begin with a brief description of the phases that seem to mark academic discourse and then discuss each of them in terms of their characteristic features.

There are three kinds of what I have called structuring phases that occur in the lectures: Discourse Structuring, Conclusion and Evaluation. In the first of these, lecturers structure the whole of their discourse by explicitly indicating the direction they will take. That is, they predict or announce to the audience new parts of the lecture to follow. In the Conclusion phase, speakers summarize important information to ensure that receivers are aware of the more salient points. The Evaluation phase is one in which lecturers pass judgements, as it were, on information to be imparted or on points already made. The users in this situation, in other words, explicitly indicate how material is to be weighed to help students form their own judgements. In addition to these, there is also an Example phase in which lecturers exemplify theories or principles discussed in Content phases. Interaction is the label given to another phase to indicate those strands in which speakers seek to maintain contact with their audience by interacting with them in a variety of ways.

Looking more closely at each of the phases will reveal their distinguishing features. The Discourse Structuring Phase is identifiable, semologically, first in terms of ideational selections; throughout occurrences of this phase mental processes mainly of cognition predominate, with participant roles filled primarily by first person singular and plural pronouns as well as second person pronouns. The type of process stems from the nature of the activity going on here - an intellectual one; the participant roles filled with pronouns such as you, and we suggests that the professors are asking the students to share in this activity. The speakers could easily have chosen only the first person singular pronoun I but don't because they are inviting and expecting students to share in the unfolding of the information. Interpersonally, there are three distinguishing features of this phase: a large number of imperatives realizing the speech function Command, and wh

interrogatives realizing the speech function Question. With these selections, the professors are seeking to direct students' attention and to emphasize points. The third marker of this phase is in the choice of modality. Two related types predominate here: going to and will, expressing intentionality and prediction, particularly congruent given the purpose of the phase: to direct students' attention to new information to be covered next in the lecture.

Textually, two cohesive devices are quite evident: repetition and exophoric reference, the latter being to the black-board where the written words form an extended text accompanying the user's spoken words.

Given the purpose of this phase it is not surprising to see how semological predications are realized here. The main morpho-syntactic pattern is independent clauses with almost no embedding. This seems to result from the functional tenor of the situation; to ensure that the audience follows the direction being indicated by the speakers they choose simple sentence structure.

To get a flavour of this type of structuring that seems to mark all of the lectures I have analyzed, I have included some lines from the Discourse Structuring Phase from the Engineering Lecture (see Appendix 1).

Moving on the Conclusion phase it is a bit more difficult to characterize in terms of ideational selections of predication types because each of such phases in different lectures depends on the nature of the information given to students during the Content phases. In other words, if the content focuses on mental predications, these are reflected in the Conclusion phase; if, on the other hand, the main focus is on actions that are performed, for example, in a typical national economy as they are in the Economics lecture, then the predominant predication choice is that of action in the Conclusion phase. So, there is predication variation in this phase across disciplines. However, there is consistency in other semological choices. Interpersonally, there are two types of modality again, but quite different from those of the Discourse Structuring phase. Here they are those of possibility and necessity - can, may, might, have to, and got to. Through such choice of modality the speakers explicitly indicate the possible as well as the necessary conditions under which points hold true. Mood for the most part is unmarked in this phase with a few exceptions in one of the lectures - Engineering. Textually, the main cohesive device is that of repetition, not unexpectedly in a phase in which a speaker summarizes key concepts addressed in the lecture. Morphosyntactically, the general pattern is one in which there is more embedding in qualifications; as well, alpha

beta constructions are significant, particularly of condition and cause.

The last structuring phase, that of Evaluation, is different again from the other two. Here ideationally, one type of predication predominates: relational, and of that, mainly those of attribution surface with great regularity across disciplines. For example, in the Engineering lecture there are utterances such as the following:

That's a more complicated view (reference is to a solution just put on the board)

That's a very key issue in problem solving

Those from the Sociology lecture are similar in type:

Now, that's not a minor issue

The role of ethnic groups is very significant

These choices clearly reflect the intention of the speakers which is to indicate to students how they should weigh information being given to them, which approaches, which views to adopt and by implication which to avoid. This is the clearest marker of this phase but there are others that distinguish it. Interpersonally, there is little mood variation and very few modals, but the marking attitudinally, as we have seen, is found in the attributive relations which form a chain of attribution. Morphosyntactically, as would be expected with the predication type, realizations are in simple independent clauses with almost no embedding.

Moving on to the Interaction Phase, perhaps one of the most distinctive features of it is in interpersonal selections. It is here that mood variation is particularly evident with a pattern different from that of the Discourse Structuring phase where there were *wh* interrogatives realizing semological questions of a particular sort - rhetorical - the purpose being to focus attention on points the speakers were announcing. Here however, the many *wh* and polar interrogatives realize semological questions of a different sort; they are not rhetorical, rather they are posed by either the professor with the expectation that they be answered by the audience - and they are - or posed by the students, and answered, by the professor. In other words, it is here that the users and receivers enter into a dialogue with each other; the influence of personal tenor seems particularly evident - the intention being to maintain contact with the audience. One obvious way in which to do so is to pose and answer questions to engage the receivers. This is reinforced in ideational selections of participant roles filled by first and

second person plural pronouns - the participants in the activity of the discourse - the professor and his audience.

Textually, the most prominent feature is exophoric reference to the blackboard and to overhead transparencies showing once again the way in which the written reinforces the spoken parts of this discourse and indicating the extent to which in this type of language event the two are necessary for cohesion. The text, in other words, is not complete without both parts; as such, exophoric reference here is a cohesive device. In these discourses it would be impossible to eliminate the board and overhead references and still have a cohesive text. In this sort of generic situation then, such reference is cohesive because it connects the verbal with the non-verbal or written parts of the lecture so that in this type of social context at least it is an instance of extended endorphic reference.

Morphosyntactically, once again there is very little embedding here; most sentences are realized by simple or compound independent clauses.

Moving on to the features of the Content phase, there is no mood variation at all here. All statements are realized by indicative declarative sentences. It is the phase which focuses solely on the dissemination of information. In a sense it is the most scientific of the phases; the interactive elements of other phases, particularly those of Discourse Structuring, and Interaction are totally missing here - modality is not marked, mood is unvaried. The giving of information in the field of science seems to necessitate an objective, distanced approach - hence the lack of interactive elements, the lack of personal evaluation by the speaker. The purpose of the phase is also clearly reflected in the morphosyntax. Here we find a very different realizatory pattern - there is only heavy embedding but several alpha beta constructions as well because it is here that precision of information is utmost importance; this can be achieved in a variety of ways but typically it is accomplished through post-modification in which clauses are rankshifted to qualify nominal groups. Another way to do so is to explicitly indicate the relations between propositions through alpha beta constructions. In the field of scientific explanation, and in a phase designed to explain scientific concepts, it is important to be precise as well as objective - this is achieved congruently by semological and morphosyntactic choices.

The last phase to which I now turn is that of Examples which is particularly prominent in the Sociology lecture. (see Appendix 2) Ideationally, the participants are not those in the situation of the lecture - the speaker and his audience - but those who 'people' the discourse itself - those who resist positioning by society in a variety of ways, (the main topic of the lecture).

These are the characters in the examples given to illustrate concepts discussed in the Content phases of the lecture. Also ideationally, the main form of prediction is action, but there are also relational ones which serve to identify participants; however, the focus is on the activities these characters perform as they battle against bureaucracy. Interpersonally, the phase is unmarked and is realized throughout by indicative declarative sentences. Textually, two prominent cohesive devices mark this phase: collocational sets and participant chains. Morphosyntactically, as one might expect in a narrative strand such as this, the main realizatory pattern is in simple clauses, with only moderate embedding.

Let me conclude by saying again that the purpose of this paper has been to illustrate the dynamic structure of one type of discourse in terms of the phases that recur discontinuously throughout it. Phasal analysis, as I have tried to indicate today, allows one to note and capture descriptively the way in which different strands that are interwoven throughout an instance of language contribute to its macro-structure. This seems to more accurately reflect the organization of discourse, standing in contrast to that of the static structure configured in terms of the beginning, middle and end of a given language event. For example, a particular strand such as that of Discourse Structuring (see Appendix 1) not only occurs at the beginning of a piece of discourse but at several different places within it. It would be wrong therefore, to identify such a strand as an introduction to or the beginning of a piece of text or discourse.

If we are concerned, as I am, to describe how different language events are actually structured, then it seems particularly relevant and useful to be able to show the way in which different strands are interwoven to form the dynamic structure of registerial varieties. Phasal analysis offers such a perspective. Furthermore, as we have seen, it not only yields macro-level descriptions in terms of the phasal organization of an instance of discourse, but also micro-level semological and morphosyntactic features that characterize each of the phases.

My current research is designed to further test this model of analysis because if it can be shown that it works with a large corpus of one type of language event it will be a particularly powerful tool in the description of actual instances of language. The model, applicable to one registerial variety, could then be applied to others thus offering the possibility of developing a more unified approach to the typology of texts.

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APPENDIX 1ENGINEERING DISCOURSE: DISCOURSE STRUCTURING PHASE

DISCOURSE STRUCTURING SENTENCES: 7-8, 17-18, 20, 28, 31, 37-38, 47-48, 58, 72, part 74, 94-95, part 96, 112, 116, 168, 171, 190-193, 196-197, 214, first part 215, part 234, 251, 260, 267, 277, 280, 289, 291, first part 324, first part 325, 327, 330, 333-334, 337, 343, 348-349, 375-376, 392.

(Sample lines):

7. Anyhow, okay, root solving (lecturer writes on transparency) is gonna be the first topic in the numerical analysis, uh, topic that we're gonna be dealing with.
8. So we're gonna leave FORTRAN alone for say, for, a little while and then, uh, we're gonna go through root solving and possibly, uh, linear equations, and then we'll come back to more, uh, more FORTRAN.
37. However, as we'll see there are a number of techniques that can actually get us to the, solutions to, fairly high accuracy, in fact to arbitrary accuracy.
47. So, how would you find that?
48. And how is that a root solving equation?
58. I could then plot (lecturer starts drawing third graph) this function.
94. Okay, so there are basically two steps that have to be done.
95. First of all, you've gotta look at the problem, and decide.
116. So the first questions we ask (lecturer writes on transparency: 'Questions'), so questions we need to know when we talk about root solving, uh, how many roots are we talking about? (lecturer writes: 'has n').
168. Okay, the second question is what are the - where are the roots roughly? (lecturer writes on transparency: 'where are roots roughly').
196. How does it work?
197. Essentially we know the following.
214. Let's just organize it.
215. What you do is you say the following (draws line): 'I have an interval'.
251. Well, since we're dealing with a cubic, what do we know?
260. Let's write down a very crude algorithm.
267. What's the easiest way of ask - of determining whether I have a root in there?
333. Look at it.
337. We wanna calculate the function.
343. So let's take a look at this.

APPENDIX 2SOCIOLOGY DISCOURSE: EXAMPLES PHASE

EXAMPLES SENTENCES: 31-32, 36-40, 58-60, 62, 71-73, 97-98, 108-132, 170, 214, 218-224, 232-235, 243-250, 253-256, 258-263, 265-277, 324-330, 342-343, 345, 357-359, 362-363, 365-367, 369-370, 444- first part 450.

(Sample lines):

242. One of the things you do, you remember Chevy, you know the GM cars slam-lock.
243. So the car's coming down the production line with the key in it.
244. And when it gets to the end of the line, the, uh, the foreman's supposed to get in and drive it off.
245. So you just slam-lock the car.
246. And they have to stop the line long enough for the foreman to go get a master key and open the cars.
247. Well it has the effect of just stopping the line long enough.
248. Just effect -- you know you get a little break.
249. Uh, they used to weld a rag to the firewall and set fire to it.
250. So the foreman had to stop things long enough to put out this fire, which didn't damage the car, but, uh, it was done just a little way of resisting to, uh, to block that that thing, to sort of stop it.
264. D-did I tell you the story of Howard Gibeaux?
265. Howard was a buddy of mine in graduate school.
266. Not a close friend, but an interesting guy.
267. He was a librarian.
268. He didn't like being a librarian but that's what he did.
269. He was in charge of cataloguing foreign language books.
270. So what he did was to, catalogued the books and he'd assign them a number, and then he'd put the number in a formula of his own devising, and what came out of the formula at the other end, it was an algebraic formula, came out at the other end, was another number.
271. And that's what Howard painted on the book.
272. So in fact all the foreign books were misfiled.
273. And Howard went to the library and he said uh, uh, he says 'I'm not greedy.'
274. But for enough money to get to California and sort of start me off in California' -- I think he asked them for about three thousand bucks -- 'for enough money to do that, I'll give you the formula.'
275. And they figured it was probably cheaper, I, I guess that's

what they figured.

276. I don't know the details of it, except that Howard did go to California (student laughter).
277. It was cheaper to pay him for the formula, than to send people roaming through the stacks at a very large university library, trying to find the books.

SHAKESPEARE'S UNIQUE MANIPULATION OF LANGUAGE: FOCUS ON SOME BASIC LINGUISTIC ASPECTS

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In this study I attempted to examine the dramatic value of language, its qualitative function in achieving a definitive purpose and to point to linguistics as an invaluable aid in shedding light on aspects of character and action that might otherwise be overlooked, ignored and/or misunderstood.

Few poets had as much freedom in linguistic activity as did Shakespeare who, like his contemporaries, had a passion for novelty and experiment. He readily accepted new words of every kind and used them with daring and resourcefulness.

King Lear offers an illuminating example of Shakespeare's unequalled dramatic art, his creative power in words, his genius for metaphor and imagery (e.g., the dynamics and beauty of the animal imagery in *King Lear*¹), his unique linguistic skill. Syntax as well as tone was an integral part of his art as he molded words into patterns and rhythms to correlate with mood, action and character. Functional and syntactic reversals, miscellaneous compoundings, diverse uses of the verb, differing shades of style or type of expression — verse or prose — were among the linguistic factors devised as stylistic means to convey and intensify the drama of the upheaval of the natural — the moral order and the tempest in Lear's mind — the one imaging the other. Shakespeare molds the two types of contemporary vocabulary — formal, learned, borrowed (mainly of foreign origin, esp. Greek, Latin, French, Spanish²)/informal, colloquial (mainly of native origin) to fit thought and action in conveying Lear's dramatic development from pomp, hypocrisy and spiritual blindness — in language mainly of the formal, sophisticated type, generally in the complex sentence pattern, the agentive ('active') type of verbal expression dominated by the non-stative verb, the imperative mood — to his restoration and reconciliation rendered mainly in the common, native word, the familiar metaphor, the simple sentence pattern, the non-agentive ('passive') type of verbal expression characterized mainly by the stative verb, the indicative mood.³ A close reading of the text with attention to the dramatist's diversified manipulation of the differing nuances of language will enable us to sense, experience and appreciate with greater clarity the function of language in achieving a definitive purpose.

The following are a few examples of some basic linguistic aspects in *King Lear* — valid manifestations of the malleability of

the English language — applicable in the language learning process and in the art of interpretation.

Functional Reversals

One of Shakespeare's characteristic treatments of words is his frequent use of one part of speech for another (My italics throughout).⁴

1. *Noun used as passive verb found mostly in the participle.*
 - a. Lear, in blind anger, to Burgundy about Cordelia, who, not having satisfied his vanity in the love test, is now *Unfriended*, new-adopted to our hate, *Dower'd* with our curse and *stranger'd* with our oath.
(I.i.202-203)
 - b. Lear, in his prayer to the "Poor naked wretches" of the world, identifies with their *loop'd* and *window'd* raggedness."
(III.iv.31)
 - c. Edgar, about Lear's and his own tragic condition — Lear's caused by his children; his, Edgar's, by his father: "He *childed* as I *father'd*!"
(III.vi.108)
 - d. Regan speaks of Gloucester's "*nighted* life".
(IV.v.13)
2. *Adverb used as a noun:*
 - a. France, to Cordelia, taking her as bride to France: Thou lovest *here* a better *where* to find.
(I.i.260)
3. *The prefix "be" + intransitive verb used to give a transitive significance to verbs that without this prefix must require prepositions:*⁵

LEAR: Old fond eyes,
Beweep this cause again, I'll pluck ye out
(If you weep *for*...)
(I.iv.296)
4. *"Be" + noun used as verb:*

Albany reprimanding Goneril:
Thou changed and self-cover'd thing, for shame,
Be-monster not thy feature
(IV.ii.62-63)

Compounds

Shakespeare's compounds, markedly numerous in *King Lear*, are frequently composed of native monosyllabic words. Here, too, we find functional reversals which in the main, are noun + verb or combinations of different parts of speech concocted as adjectives to convey the desired image all the more effectively. Thus, to the distressed Lear his elder daughters' "Ingratitude" is a "*marble-hearted fiend*" (I.iv.253), and Goneril's "unkindness" is "*sharp-tooth'd*" (II.iv.131). Out in the violent storm, from which even the "*cub-drawn bear*" and the "*belly-pinched wolf*" will seek shelter, Lear "Strives in his little world of man to *out-scorn*/the *to-and-fro* conflicting wind and rain" (III.i.10-11). The Fool labours to "*out-jest*" his master's "*heart-strook injuries*" (III.i.16-17) as Lear raves to the tumultuous elements — the "*thought-executing fires*", the "*Vaunt-couriers of oak-cleaving thunderbolts*", the "*all-shaking thunder*" — to "Strike flat the rotundity o' th' world!" (III.ii.4-7) and upbraids them for joining his "two pernicious daughters" in their (the elements') "*high-engender'd* battles 'gainst a head/So old and white as this" (III.ii.22-24). The efficacious compounding here enhances the image of the tempestuous upheaval of the elements reflecting the inner turmoil of the bemadded Lear and projects in climactic contrast that of the "poor, infirm, weak and despised old man" (III.ii.20). Lear, mad, presents a "*side-piercing sight*" to the compassionate Edgar (IV.vi.85) and Cordelia prays for the restoration of her dear "*child-changed father*" (IV.vii.17) who had stood against the "warring winds" and the "*deep dread-bolted thunder*" (IV.vii.33-34) — a concluding image of the horrendous suffering incurred by filial ingratitude. As a culminating, but not exhaustive example of Shakespeare's compounding device in *King Lear* we have Kent's vituperative denunciation of the despicable rascal Oswald, that "*three-suited, hundred-pound, ... worsted-stocking knave; a lily-livered, action-taking ... glass-gazing, superserviceable ... rogue; one-trunk-inheriting slave ... a brazen-faced varlet*" and a "cullionly [base, vile] *barber-monger*" (II.ii.13-30) — a virtuoso image rendered in language understood and relished by all members of the audience.

"Be"

"Be" is often omitted for dramatic purposes of compression, emotion, or tension, as in Lear's curse on Goneril:

<i>LEAR</i> .Blasts and fogs [be] upon thee!	(I.iv.293)
My curses [be] on her!	(II.iv.142)

or, when he comes to Regan and finds Kent in the stocks:

<i>LEAR</i> .Death [be] on my state! wherefore should he sit here?	(II.iv.108-109)
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It is sometimes used in this form, "*be*", to convey the sense of intensity of emotion or the philosophical sense of *being* as *existing* to contrast with its regular inflected form in ordinary speech. Thus, Kent's "*Be* Kent unmannerly, / When Lear is mad" (I.i.144-145) is his undaunted declaration of his honesty in the face of Lear's increasing ire. When Lear, enraged by Goneril, is preparing to leave her for Regan's, he is provoked by the Fool to thought about his own identity. He muses about his wrong-doing to Cordelia ("I did her wrong—" I.v.23). The mood is meditative, inward-turned:

LEAR I will forget my nature.
So kind a father! — *Be* my horses ready? (I.v.31-32)

The gentleman then enters and Lear bestirs himself to a consciousness of the need of the present moment. The question is repeated, but divorced from its previous intense personal note, it is now rendered in the common ordinary form with the inflected "*be*".

LEAR. How now! *are* the horses ready? (I.v.45)

"*Shall*" / "*Will*"⁶

"*Shall*" and "*Will*" are sometimes juxtaposed to convey the sense of inner conflict and uncertainty. It becomes a deliberate part of Shakespeare's pattern, as, in expressing Lear's struggle for control when he realizes the unnaturalness of his elder daughters. Speech is stunted by heartache, effecting the elliptical nature of the passage.

LEAR. No, you unnatural hags,
I *will* have such revenges on you both
That all the world *shall* — I *will* do such things, —
What they are, yet I know not, but they *shall* be
The terrors of the earth. (II.iv.275-279)

This sense of conflict is strengthened by an isolated "*will*" detached from its subject and followed by a structural reversal of the negative in Gloucester's:

He calls to horse; but *will* I know not whither. (II.iv.294)

"*Do*"; *Structural-Syntactic Reversals*

Shakespeare's use of "*do*" varies. It may serve to contribute to the rhetorical weight of a statement inhering, as well, a subtle note of irony,

LEAR (to Regan, about Goneril).
 Her eyes are fierce, but thine
 Do comfort and not burn. (II.iv.169-170)

or, to convey the sense of "Happen to", as, Edmund, to Edgar: "if you *do* stir abroad, go armed" (I.ii.160), while his, "I *do* serve you in this business" (I.ii.168) underlines his hypocrisy. Most striking is a *deliberate omission of "do"*, as, for example, to convey Edmund's contriving to betray his brother. His questions — curt, sharp, wily — shoot out at the unsuspecting Edgar. Edmund is set on business. Their dialogue is accordingly in prose. The tone is pressing, practical, urging. Note here, as well, the syntactic reversals emphasizing the dramatic intensity of Edmund's guile.

EDMUND. Come, come, when saw you my father last? ...
 Spake you with him? ...
 Parted you in good terms? Found you no displeasure
 in him by word or countenance? (I.ii.143-148)

A similar structure deepens the sense of Kent's anger at the contemptible Oswald,

KENT. Smile you my speeches, as I were a fool?
 (II.ii.77)

and accentuates his ultimate disdain for this knave with a final emphatic "not":

KENT. His countenance likes me not. (II.ii.85).

Or, mark Burgundy's devious answer to Lear's question — whether he would "take" or "leave" the now disowned Cordelia — to convey his perverted intention for material gain:

BURGUNDY. Election makes not up in such conditions.
 (I.i.205)
 ("I cannot decide on such terms" would have a much weaker impact).

There is the irony of Cornwall's trust in Edmund effected skillfully by the structural reversal of his declaration:

CORNWALL. You shall be ours.
 Natures of such deep trust we shall much need;
 You we first seize on. (II.i.114-116).

And there is the powerful image of Lear's unhinged wits produced in Cordelia's prayer:

CORDELIA. O you kind gods,
 Cure this great breach in his abused nature!
 Th' untuned and jarring senses, oh, wind up
 Of this *child-changed* father!

(IV.vii.14-17)

Style-Differing Shades

Shakespeare exploited the current varieties of language, using the more learned or classical words (mainly ornate, polysyllabic and of foreign origin), or the more familiar or simple words (mainly monosyllabic and of native origin) to convey, whether in prose or blank verse, differing tones of human expression — formal or common, emotional or rational, abstract or concrete — that would accord with a finely definitive purpose. The English vocabulary offered a wide range of choice. It contains many pairs of words (notably nouns and the adjectives corresponding to them in meaning) that are alike in meaning but not in form or sound, as *mouth-oral*, *eye-ocular*, *house-domestic*, etc.; pairs in which the noun is a familiar word (not necessarily native) and its corresponding adjective is, again, more learned, as *city-urban*, *country-rural*, *fatherly-paternal*, etc.; pairs of words that are almost, but not quite, synonymous differing only in shades of meaning, as *heartly-cordial*, *watchful-alert*, etc. Still other groups of words include *kingly-royal-regal*; *ponder-meditate-muse-ruminate*; *make-form-shape-fashion-fabricate-manufacture-forge*, etc. Many words are allied rather than synonymous in meaning, as *magic-sorcery-witchcraft-witchery-wizardry-alchemy-thaumaturgy*, etc.⁷ All lend themselves to the author's precision of choice.

The style, or type of expression, then, is to a great extent a function of the nature of the vocabulary employed. The more sophisticated style, generally characterized by ornate, polysyllabic Latinized diction, is not necessarily of greater (nor lesser) beauty than the more simple style, characterized by the familiar native words which are to a great extent monosyllabic. That each can be superb in its own way is manifest in our literary heritage, prominent examples being the Bible and Shakespeare. That both styles may be equally sublime, whether used individually or in deliberate juxtaposition, for effect, is manifest throughout Shakespeare.

In *King Lear* we shall note that along with Lear's gradual acquisition, through suffering, of self-knowledge, humility and the recognition of the values of common humanity, along with the change that comes about in him with the purification, the catharsis, there is a corresponding change in language and syntax. Lear's mode of expression moves gradually toward a greater simplicity.

When Lear addresses his court in his opening speech (I.i), his style is formal, majestic. It is the type of ceremonial language and tone Shakespeare gave to his kings on similar occasions (Richard II in *Richard II*, 1.iii.119-143; Claudius in *Hamlet*, I.ii.1-38). The sentences are in the main long, the syntax complex, the vocabulary to a great extent polysyllabic, abstract and of Latin or French origin. The set-up formal speeches testify to the insincerity and hypocrisy of the situation. The theatrical rhetoric dramatizes the lack of substance of Lear's ostentatious pronouncement, for the deed has already been done — the kingdom already divided. Goneril's and Regan's elaborate protestations of love, decorously designed to please, however false, contrast sharply with the plainness and truth of Cordelia's answer in words few, simple and native — the language used by honest Kent in defiance of the wrathful King, his master, blinded by complacency and self-indulgence.

In the storm Lear becomes aware of the suffering of others. He learns compassion and prays to the "Poor naked wretches" of the world (III.iv.28), and with the advent of Edgar disguised as "poor Tom", a "madman", he strips himself of his regal "lendings" so as to identify with him — "the thing itself; unaccommodated man ... a poor, bare, forked animal" (III.iv.103-104). In the course of his dramatic development, Lear's style takes on a wholly different character. The sentences are shorter, the syntax less complex, the vocabulary, in the main, monosyllabic and of native origin, the tone informal with a down-to-earth quality rich in feeling, the metaphor domestic.

Let us consider briefly the first ten lines of two of Lear's longer speeches to sample the differing shades of style Shakespeare devised for Lear in the various stages of his development. We shall conclude with some of his last utterances.

Lear in his opening bombastic speech strikes a note of authoritative command (My italics for words of Latin or French origin as of the M.E. period. Proper names are excluded. D.N.):

LEAR. Meantime we shall express our darker purpose.
Give me *the map there*. — Know that we have *divided*
In three our kingdom; and 'tis our fast *intent*
To shake all cares and business from our *age*,
Conferring them on younger strengths, while we
Unburthen'd crawl toward death. Our son of Cornwall, —
And you, our no less loving son of Albany,
We have this hour a *constant* will to *publish*
Our daughters' several *dowers*, that *future strife*
May be *prevented* now. The *princes*, France and Burgundy.
(I.i.34-43)

20% of the words here are of foreign origin. The formal style,

complex syntax and long sentences contrast with the unsophisticated, unaffected style employed to match Lear's speech when, out in the grasp of the tumultuous storm, suffering both physically and mentally, he is filled with compassion for others and prays to unfortunate humanity, heedless of himself. The pervading note is that of humility, calm and a newly achieved understanding. Kent has just implored him to shelter in the hovel.

LEAR Prithee, go in thyself; seek thine own ease;
This *tempest* will not give me leave to *ponder*
On things would hurt me more. But I'll go in. —
In, boy; go first. — You houseless *poverty*, —
Nay, get thee in. I'll *pray* and then I'll sleep.
[Fool goes in.]

Poor naked wretches, wheresoe'er you are,
That bide the pelting of this *pitiless* storm,
How shall your houseless heads and unfed sides,
Your loop'd and window'd raggedness, *defend* you
From *seasons* such as these? Oh, I have ta'en ...

(III.iv.23-32)

Here 10% of the words are of foreign origin. We note the informal style, the simple syntax, the familiar word and metaphor, the common "me", "I" against the earlier dominating "we", "our" in Lear's reference to himself, now associating himself with common humanity.

In the scene of Lear's restoration there is that monosyllabic expression of tenderness when he recognizes Cordelia:

LEAR Pray, do not mock me;
I am a very foolish, fond, old man ...
I fear I am not in my perfect mind;
Methinks *I* should know you and know this man;
Do not laugh at me;
For as *I am* a man, *I* think this lady
To be my child Cordelia.

(IV.vii.57-70,
my italics)

We note the predominance of the stative verb in this passage, as in the entire scene underlining his present non-agentive ('passive') semantic role, his reconciliation. His language here and hereafter excludes any affectation. It is native, concrete, conveying universal truth, reaffirming that of his identity as man, as father. It is the expression of "the immensity of feeling that finds few words or none, but those words, when they come, are a revelation of a whole country of the mind."⁸ We recall Lear's wrathful banishment of Cordelia in the beginning of the play.

LEAR. Therefore be gone,
 Without our *grace*, our love, our *benison*. —
 (I.i.263-264.
 my italics)

and hear his humble offer of love and blessing to her at the end:

*When thou dost ask me blessing, I'll kneel down
 And ask of thee forgiveness.* (V.iii.8-13,
 my italics)

We attend to his last words, so profound in their sensitive and down-to-earth quality. It is the sublime poetry of the master-creator:

LEAR. And my poor fool is hang'd! No, no, no life!
 Why should a dog, a horse, a rat, have life,
 And thou no breath at all?

His anguish, stated so simply,

Thoul't come no more,

is all the more dramatically conveyed by the repetition of one common word,

never, never, never, never, never! (V.iii.305-308)

The above examples from *King Lear* are but a few illustrations of Shakespeare's poetical-dramatic-linguistic creativity. Language in his hands became a precise, yet poetic tool with which to shape his thoughts and feelings and therewith to mold his monumental artistry. His virtuoso manipulation of the differing nuances of language embodies a variety of basic linguistic aspects that are applicable in the language learning process, enlighten an understanding of the function of language in achieving a definitive purpose and serve as an invaluable aid in the art of interpretation.

NOTES

1. See Dorothy E. Nameri, *Three Versions of the Story of King Lear* (Anon. ca. 1594/1605, William Shakespeare 1607/1608, Nahum Tate 1681) *Studied in Relation to One Another*. 2 vols. *Elizabethan and Renaissance Studies*, Nos. 50, 51, ed. Dr. James Hogg (Salzburg, Institut für Englische Sprache und Literatur: Universität Salzburg, 1976), Ch. 3.
2. The contemporary "borrowing" of a multifarious stock of foreign terms was inspired by the dramatic, economic, political, social and cultural development of the time, the

- Elizabethan zest for novelty and adventure, their intellectual curiosity, their urge to enrich and embellish the English vocabulary. Sir John Cheke and Roger Ascham, both ardent humanists, censured false learning and redundancy, urging the removal of all "inkhorn" terms considered by the "purists" as coming from the pens of pedants and condemned as obscure and having no part in the living English language. Shakespeare's satire upon the pedants Armado, Holofernes and Nathaniel in *LLL*, Osric in *Hamlet* demonstrates his view of excessive borrowing. See Ryder, E. Rollins & Herschel Baker, eds., *The Renaissance in England* (Boston: D.C. Heath & Co., 1954) pp. 640-646.
3. For a discussion of Lear's Agentive ('active')/Non-Agentive ('passive') semantic role see Dorothy E. Nameri, "The Dramatic Value of Lear's Verbal Expressions: A Linguistic-Literary Analysis," *Jacobean Drama Studies* 95:4, *Jacobean Miscellany* 4, ed. Dr. James Hogg (Institut für Anglistik und Amerikanistik, Universität Salzburg, 1984) pp. 1-86.
 4. All quotations are from *A New Variorum Edition of Shakespeare. King Lear*. Edited by Horace Howard Furness (New York: Dover Publications, Inc., 1963 (1880)). My italics throughout. D.N.
 5. See E.A. Abbott, *A Shakespearian Grammar* (New York: Dover Publications, Inc., 1966 (1870), par. 438. See S.S. Hussey, *The Literary Language of Shakespeare*. (London, New York: Longman, 1982) for Shakespeare's style and some of his "most exciting linguistic usages" (p. 123).
 6. See Henry Bradley, "Shakespeare's English", *Shakespeare's England*, Vol. II (Oxford: Clarendon Press, 1916), pp. 554-555 for the use of "shal"/"will" in Shakespeare's time. See Abbott, op. cit., par. 315 ff.
 7. The different methods of word creation are discussed with numerous examples in Stuart Robertson and Frederic I. Cassidy, *The Development of Modern English*, 2nd ed. (Englewood-Cliffs, New Jersey: Prentice-Hall, Inc., 1934, '38, '54), pp. 185-220; see also Albert C. Baugh, *A History of the English Language*, 2nd ed. (New York: Appleton-Century-Crofts, Inc., 1957), pp. 215-216, 357-370; Thomas Pyles, *The Origin and Development of the English Language* (New York: Harcourt, Brace & World, Inc., 1964), pp. 262-300.
 8. Una Ellis Fermor, *The Jacobean Drama* (London: Methuen & Co., rev. ed., 1953), p. 237.

LINGUISTIC ANALYSIS AND COMMON AUTHORSHIP
Part I

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Introduction:

Whether [the author of Pearl] was also the author of the other three poems in the manuscript, Sir Gawain, Purity and Patience, is a question which must probably be left ultimately to personal impression: most of those who have studied the poems in detail have come to the opinion that they are by the same author. All four poems are written in the same dialect, and are localized, by vocabulary and other linguistic indications, in the same region...They are linked also in varying degrees by verbal parallels and a similarity of descriptive talent...they share an interest in certain problems of life: the value of purity, explained and illustrated in the three biblical stories in Purity, is at the heart of the theme of Pearl, and, applied to courtly behaviour, forms the motive of the story in Sir Gawain; the virtue of patience and acceptance of God's will, illustrated in the story of Jonah in Patience, is the lesson the dreamer has to learn in Pearl...in all four poems there is evidence of religious zeal and devotion combined with knowledge and admiration of courtly life and ideals...Pearl cannot be dated with any precision. The downward limit is fixed by the date of the manuscript, which is not later than c. 1400; the details of costume belong to the second half of the fourteenth century...More precise dating can only be comparative, on the assumption of common authorship for all four poems of the manuscript...There are indications, though nothing approaching proof, that Patience and Purity are earlier than Sir Gawain; but there is nothing to show the chronological position of Pearl in the series. If all four poems are by the same author, the maturity of workmanship in Pearl would put it probably later than Purity or Patience. On the same assumption, too, one can discern a development in method of approach: in Purity and Patience the author seems to be working out with great care the moral values of these virtues in human life, and in Pearl and Sir Gawain he seems to be putting his conclusions to the test...(Gordon, 1963, xli-xliv).

This long quotation summarizes the entire complicated convolutions of earlier scholarship. It is unsurpassed in its elegance of phrase and accuracy of detail. The inclusion of Gordon's statement is worth while. Most linguists are not familiar with the literary-linguistic-philological-theological-philosophical analyses of the past. In these studies varying combinations of linguistic, literary, poetic, stylistic, philosophic, and theologic features have been used to determine author and date. Studies with features drawn from differing referents lack reality. Gordon's account illustrates the problems inherent in trying to establish author and date for medieval works using mixed referents/features.

A methodology that supports a satisfactory inquiry into the common authorship for either anonymous or signed works (the latter for validation of authorship) has never been developed. Many attempts have been made by previous scholars to do so, using dialect, vocabulary, synonyms and homonyms, phraseology, alliterative and rhyming patterns, and thematic, philosophic, and religious aspects and their treatment--a regular grab-bag of disparate features. However, no truly extensive or definitive analyses with comparison of similarities and differences have been undertaken. The studies reported in the literature hint at solutions, but they do not offer conclusive proofs that demonstrate either commonality of authorship or the converse.

Background: Extensive investigative effort has been expended on questions of authorship for various Old English, Middle English, and Renaissance texts. However, definitive answers have not been provided for many texts. Such answers regarding authorship need to be provided for the following poems:

1) The Old English poems Christ I, II, III (Exeter ms., same scribal hand) with Cynewulf's runic signature in Part II, for authorship of I and III.

2) The four Old English poems Christ II (Exeter ms.), Elene (Vercelli ms.), Juliana (Exeter ms.), and Fates of the Apostles (Vercelli ms.) for evidence supporting single authorship beyond the runic signature naming Cynewulf.

3) A comparison of Andreas (Vercelli ms. also) with Fates of the Apostles and the three other poems containing Cynewulf's signature: it is possible the placement of the signature in Fates could be the result of scribal error (cf. Krapp, xxxvi-xxxvii). Andreas, which immediately precedes Fates in the ms., seems linguistically and stylistically closer to the other three signed poems than Fates does.

4) A comparison of the Old English Genesis A and B (Junius ms.) because Genesis B is known to be an interpolation into Genesis A to fill the lacuna of ll. 235-851. Genesis B is known to be an Old English translation of the Old Saxon Heliand and currently is not considered to be composed by the original Old English author of Genesis A but quite possibly by the later Junius ms. scribe.

5) Examination of the Old English poem, Dream of the Rood (Vercelli ms.) because it shows a distinct break in style, tone, and language usage which suggest a different author for the first half contrasted to a second one for the last half of the poem--ecstatic mysticism vs. homiletic exhortation.

6) The five Middle English poems Gawain and the Green Knight, Pearl, Cleanness/Purity, Patience (all in British Museum ms. Cotton Nero A.x., same scribal hand for the four poems), and Saint Erkenwald (British Museum ms. Harley 2250), the first four included because all are in one manuscript and the latter because it matches the subject matter found in Pearl, Cleanness, and Purity.

7) The Middle English poem The Awntyrs off Arthure at the Terne Wathelyne because of the distinct break in style, tone, and language usage which suggest two authors.

8) Shakespeare's Titus Andronicus, Acts I and II vs. Acts III, IV, and V, as well as other plays of that period.

Such an analysis as is proposed here could offer further validation of the methodology and technique presented in this paper. The indefinite character of the date of composition complicates authorial assignment. The latest time a poem could have been composed would be just before its inclusion in a manuscript. Unfortunately, anonymity of author and date were the rule for the Old English poetry and for a good part of the Middle English poetic corpus. Cultural representation within a poem can be used tentatively to assign a possible date. However, nothing within the extant OE poetic texts, except the four poems containing Cynewulf's signature, and in most Middle English poems confirms or denies authorship or date. Insofar as author identification goes, only Cynewulf's name is known but absolutely nothing is known about him including dates of birth and burial, let alone what he did during his life. The analyses given in the earlier scholarly treatments of the various Old and Middle English poems often amount to examination of a mishmash of features combined with supposition and assumption presented as fact in the attempts to flesh out details of authorship, life, and date.

The problem is whether or not common authorship can be determined by a detailed and extensive analysis and comparison of the language which is supported by evidence from poetic features in various literary works. The hypothesis is that a writer's language usage is sufficiently individualized to enable segregation of his literary efforts from those of other writers of the same time frame. All users of a language in the same time period have in common a core linguistic segment that occurs in each person's speech and writing. The idiosyncratic features differ from individual to individual, and they can be defined just as the linguistic commonalities in the core component can be isolated. For instance, Shakespeare used unique compound adjectives in his plays and poetry which are not found

in the writings of other individuals of his time: 'an ale-house-painted sign' vs. 'thrice noble son'. His colorful adjectives and their components are part of his idiosyncratic language behavior.

The argument that idiosyncratic language use can be tempered by the poetic form with subsequent suppression of the idiosyncratic component is not supported by analysis. Although Old and Middle English poems conform to a poetic format, this format is honored more in the breach rather than slavishly followed. No evidence was found to suggest that the format affected the expression of the idiosyncratic component. The result is a clearly defineable idiosyncratic component for each poem. No evidence exists in the extant poetry that the medieval poet tried to write according to different poetic styles. There was only one style used in the culture (cf. Battle of Brunenburg, ca. 937, and Battle of Maldon, ca. 992, where each poet deliberately followed the heroic style yet could not conceal his own language idiosyncrasy). The late alliterative revival in the Middle English period clearly shows this also: it was impossible for those poets to return to the terse heroic style of the OE period; the language had changed too much and no longer fit the poetic format (compare the poems of Cotton Nero A.x. ms. discussed below with the Old English poems).

Preliminary study suggests the hypothesis is accurate and can be tested. The investigation must be of sufficient breadth, depth, and detail, including also proportional relationships derived from frequency of use.

Methodology and Technique: Multiple semantic, syntactic, morphologic, and phonologic features, as well as orthographic and poetic features, both identical and differing, have been isolated by the analysis of the data abstracted from the poems under consideration. This permitted the development of a core component consisting of features common to both works and a second component consisting of idiosyncratic features restricted to one poem only and differing from other poems. Orthographic and poetic features are included because their usage can be informative if a single scribe uses differing forms for the same linguistic unit or different poetic features in the different poems in the manuscript. This would offer support to the argument that the scribe is not necessarily the author of each poem in his manuscript. However, it is theoretically possible that a scribe under these circumstances could also be the author of some or all of the works in his manuscript.

The data were retrieved from the first 352 lines of the ME poems Pearl and Patience. This line count was selected because the shortest poem in the works to be examined contains only 352 lines. Combinations and permutations of linguistic, poetic, and orthographic features are finite as are the features themselves.

Those elements and features found in the first 352 lines of a poem will recur in subsequent lines. Previous experience has shown that few, if any, new constructions will occur in subsequent lines. It is possible to say something in Old, Middle, and Modern English in only so many ways regardless of text length. Repetition of finite sets of features is the name of the game.

Every feature noted in each poem was separated out and tallied for analysis, thus permitting the definition of the core component common to both poems and a component of differences for each poem. This involves the comparison of proportionate relationships (or spread) of one feature found in the two poems or a comparison of the spread between two or more competing features in one poem compared to the spread among the same features in the second poem. The term 'spread' is correctly applied here rather than 'interval', the latter implying the use of interval statistics.

The Middle English poems, Pearl and Patience were selected for analysis in this segment of a larger, more inclusive study of the five ME poems described above. These two poems contain many Biblical references and theological and philosophical arguments. They are also found in the one ms., Cotton Nero A.x., along with Cleanness and Sir Gawain and the Green Knight. Ideationally, the three poems are very similar in content, as is Saint Erkenwald found in another ms. Sir Gawain and the Green Knight belongs to the Arthurian cycle of poems. Its content is quite different, as well as its style and form, even though it, too, is found in the same manuscript. Cleanness and Saint Erkenwald will be analyzed with Gawain, and all five poems will be discussed together in Part II.

Poetic features that can distinguish one work from another, such as apposition of noun phrases or of reduced relative clauses, line-final placement of verb, and alliteration, were considered. For example, Patience has no line-final alliteration, while the predominant pattern in Pearl is one of line-final alliteration. These features were examined to determine which were not distinctive and which an author could manipulate so that it would be distinctive and reveal his works when contrasted to other poems.

The core component is defined as those linguistic and poetic features that are found to be non-distinctive and common in both poems. For example, appositive noun phrases and reduced relative clauses are very common in Old English poetry. A poem with a multitude of appositive phrases would be ordinary. However, a poem without any appositive phrases would be outstanding. The same would be true if a poem had only appositive noun phrases or only appositive reduced relative clauses. It is the idiosyncratic and peculiar usage of language

and poetic elements found associated in one poem which differs from the usage found in another poem that distinguishes the core component from the idiosyncratic component. If the same idiosyncratic behavior is manifested in a second poem but not in a third poem, then this fact strongly suggests that one author is involved for the two poems which have duplicate idiosyncratic components.

The percentage spread of frequency of use of a feature between the poems under consideration determined the assignment of a feature to the core component or to the idiosyncratic one. If the spread was under 30 points, the feature was considered to be non-distinctive. If there was a spread of 30 or more percentage points, then the feature was considered distinctive. A simple arithmetical counting of occurrences (frequency only) is a misleading technique if used alone. It does not reveal whether a feature belongs to the core component or to the idiosyncratic component. Proportional relationship and spread need to be determined for component assignment. The technique used here is one of arithmetic logic rather than statistical employment of non-parametric/parametric quantification.

Analysis: The analysis consists of two sections, the first being the Core Component and the second being the Idiosyncratic Component.

1) Core Component: The features assigned to the core component are those for which no striking difference in frequency of use and proportional relationship occurs between the two poems. In fact, the proportional relationship for each feature for one poem is very close to that for the second poem. Analysis has shown that the use of these features or sets of features is not significant. They do not distinguish one poem from the other or one author from another. The shared features in the core component are:

- a) The -en noun plural; the unmarked noun plural
- b) The inflected genitive, singular and plural: -s, -a, -en; the unmarked genitive; the of genitive
- c) Partitive of-genitive vs. noun phrase derived from partitive of-genitive (derived from OE)
- d) Imperative verb in clause with or without subject
- e) Middle English Orthographic features of --th vs. p, if vs. gif, qu- vs. wh- (derived from OE hw- or cw-)
- f) Verb gapping vs. subject gapping
- g) Present participle, past participle, or adjective as noun substantive
- h) Present participle or past participle as adjective substantive
- i) Noun negation vs. verb negation within a clause
- j) The various comparative forms
- k) The various Noun Phrase patterns

- l) Periphrastic verb patterns
- m) Indefinite article a/an vs. omission of it
- n) Verb placement: clause medial or clause final
- o) Impersonal verb without subject
- p) Negator + negated noun vs. negated noun + negator
- q) Semantic role Manner: filled by adverb, predicate noun, predicate adjective, or prepositional phrase
- r) Alliteration: 1) of the root syllable, initial or second syllable of word
2) of an initial unstressed syllable
3) of either the first or second unit of a compound word
- s) Number of alliterations within a line
- t) Appositive noun phrases or appositive reduced relative clauses (poetic feature)
- u) Verb placement: line-final (poetic feature)
- v) Vocabulary Sources are non-distinctive

(2) Idiosyncratic Component: The features making up the idiosyncratic component are competing features within a set. Not all the features of a set are distinctive: all are available in the linguistic inventory for use, but selection is a matter of choice. For example, of the four ways noun plurals could be formed in Middle English, only the use of the markers -3 or -s is significant although unmarked plurals and -en plurals are also in the inventory. However, the latter two forms show the same proportional relationships in both poems and the spread between the poems is insignificant.

It was determined that a point spread of 30 or more indicated a feature was distinctive and should be included in the idiosyncratic component. For example, Pearl has 22 per cent Subject Gapping, while Patience has 78 per cent. The point spread for this feature set between the two poems is 56. Because this spread is greater than 30, the feature is placed in the idiosyncratic component. All features placed in the idiosyncratic component met this criterion. The features constituting the idiosyncratic component which provide the evidence to determine single or multiple authorship for Pearl and Patience are given below:

<u>Pearl</u>		<u>Patience</u>
a) Minor subject gapping	vs.	Major usage
		(Spread between poems 56)
b) Sparse use of definite article <u>pe</u>	vs.	Greater use
		(Spread between poems 58)
c) Little multiple negation	vs.	Extensive use
		(Spread between poems 70)
d) Sparse use of <u>no + noun</u>	vs.	Greater use
		(Spread between poems 38)

- e) More occurrences of verb + negative vs. Fewer occurrences
(Spread between poems 34)
- f) Greater use of verb + particle vs. Infrequent use
(Spread between poems 50)
- g) Extensive use of con for did (modal) vs. Very infrequent use
(Spread between poems 80)
- h) No usage of Impersonal verb with subject vs. Impersonal verb with impersonal subject
(Spread between poems 100)
- i) Rare use of impersonal verb > personal verb vs. Frequent use
(Spread between poems 75)
- j) Some lines do not alliterate vs. All lines alliterate
(Spread between poems 85)
- k) Double alliteration (each $\frac{1}{2}$ -line alliterates with different sound) vs. No double alliteration
(Spread between poems 100)
- l) Alliteration of a-line only vs. No $\frac{1}{2}$ -line alliteration only
(Spread between poems 100)
- m) Alliteration of b-line only vs. No $\frac{1}{2}$ -line alliteration only
(Spread between poems 100)
- n) Alliteration ends on line-final word or syllable vs. Alliteration never ends on line-final word or syllable
(Spread between poems 100)
- o) Alliteration ends on penultimate word or syllable rarely vs. Alliteration ends on penultimate word or syllable always
(Spread between poems 81)
- p) Verb initial word in question, rare vs. Greater use
(Spread between poems 50)
- q) Greater use of present participle than past participle in reduced relative clause vs. Equal use of present and past participle as head in reduced relative clause
(Spread in Pearl 38) (Spread in Patience 0)
- r) Greater use of -ande than -yng on present participle vs. Minor difference in use between -ande and -yng
(Spread in Pearl 52) (Spread in Patience 12)
- s) Very little subject/verb # disagreement vs. Extensive disagreement

(Spread between poems 88)

Conclusions:

Insofar as the study reported here, Pearl and Patience are the works of two separate authors. This methodology and technique can be used in the analysis and comparison of the the remaining two Cotton Nero A.x. ms. poems and the one Harley 2250 ms. poem. There are more features in the core component than there are features in the idiosyncratic component as was expected. The features found in the core component, and common to both poems in the same frequencies and spread, are not distinctive. They provide no help in determining whether the two poems have one author in common, or whether each poem has a separate author. The features comprising the idiosyncratic component clearly suggest different authors for each poem.

The hypothesis is accepted insofar as these two poems are concerned, as is the validity of the investigative methodology and technique. The features making up the idiosyncratic component of the study, the component which each poem is compared to, clearly show that this kind of approach and investigation can determine single or multiple authorship--even though it cannot put a name or a face to the author.

Note: The 'test parameter' was 352 lines, the length of Saint Erkenwald and applied to Patience and Pearl for identification of poem authorship. This parameter should not be considered as a statistical sample because it is not representative of all ME poetry, i.e., the features found in this poetry are not randomly distributed throughout the ME language population. Parametric/non-parametric statistics cannot be a useful technique, not only because of the non-random character of each poem, but because the poets or scribes and their language literacy are not equally distributed in ME society. Application of statistics, descriptive or inferential, would void the null hypothesis--one might accept the hypothesis when it, in reality, is false or reject the hypothesis when it, in reality, is true--hence the use of the qualitative 'arithmetic logic' technique.

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SENSITIVE AVOIDANCE OF SEXIST PRONOUNS IN WRITTEN ENGLISH

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Although many aspects of sexist language have now been resolved, the avoidance of sexist pronouns poses many difficulties to the practitioner and the linguist. Most discussions of the subject outline five or six methods of avoiding sexist pronouns, often together with very brief notes on application. The methods are clear enough, and the examples cited are clear. However, the advice given is extremely limited by the very small number of methods included. Moreover the de-contextualized examples cited often give a simplistic view of the difficulties, and there is no analysis available on the applications and limitations of the few methods that are described. This paper builds on earlier linguistic work (Jordan and Connor, 1987), which identifies 50 methods of avoiding sexist pronouns in English, by providing introductory analysis of the uses and limitations of the most frequently advocated methods.

It is assumed here that the aim is not just to avoid sexist pronouns, but to do so in a way which does not draw attention to that fact. That is, the writing should not be made to appear stilted, or become repetitive, vague, or ambiguous in our efforts to avoid sexist pronouns. That is often much easier said than done. Anyone can simply use her/him combinations, or passives, or plurals, for example, and thus meet the main objective. But meeting this objective with sensitivity toward clarity, precision and style requires more methods of avoidance - and much more thought in their application.

After a brief introduction to the 50 or so avoidance methods outlined in the earlier work and the personal lexical continuity system on which they are based, this paper explores the uses and limitations of combinations, repetition, plurals, passives, and determiners. In doing this, many of the other methods are suggested as possible suitable alternatives, which often avoid inherent difficulties in what have become the more traditional methods. A proposed sequence for trying methods of avoiding sexist pronouns is also provided as a practical guide for those wishing to apply the theory explained here.

Personal Lexical Continuity

Sexist pronouns occur in the third person singular of the personal substitute system in English anaphora, where she, him, hers, himself etc. are used to refer to an individual who could be of either sex. They occur in subject, object, possessive (determiner and sole complement) and reflexive uses within this wider substitution system, and we need to recognize other ways of achieving personal continuity in the text for all these uses.

By first looking within the personal substitution system itself (Halliday and Hasan, 1976 is a good start), we find alternatives in the form of the impersonal it and one (the rather pompous British one...one now being preferred to the sexist American one...he), within the third person singular. And by changing person and number we can recognize the personalizing I, you, we, and they as possible methods of avoiding sexist pronouns. The relative pronoun who is obviously another method, and this leads us to realize that all defining and non-defining verbless and non-finite clauses such as -ed, -ing, and to-infinite forms (Scheurwegs, 1959) as other methods.

Within the wider system of descriptive continuity, we can recognize repetition (both full and partial), subject ellipsis and listing, generic nouns, and synonyms as other alternatives to the use of pronouns. Wider still triggered and untriggered associative and perspective connections (Jordan, 1984) are other ways of avoiding sexist reference; and there are also many implicit connections including use of the agentless passive, anticipatory It, and existential There.

Avoidance and Combinations

Although many attempts have been made to create new pronouns (such as thon/thons, co/cos/coself, she/shis/shim, ve/vis/ver - Baron, 1986) to replace those traditionally used for gender reference in English, none has received any acceptable degree of recognition. Unfortunately it is hard to imagine a socially acceptable combination of she, he, and it; and combining his and her into, say, hers would create confusion.

In much legal language, the difficulty is often overcome by continued use of the masculine singular together with a note generalizing the intent:

- (1) "This Agreement shall be read with all changes of gender or number required by the context." (Ontario Real Estate Association, Form for Agreement of Purchase and Sale, 1991)

As this method fails to meet the full objectives of opponents of sexist pronouns, many laws and legal documents are now being rewritten with complete avoidance of sexist pronouns.

An obvious way of avoiding only the masculine pronoun to represent a female or male individual is the use of combinations such as his/her, s/he, and himself/herself instead of the single form. This is an infallible - and very simple - method which retains clarity; but a minor difficulty lies in deciding which to put first (her/him or him/her). Or should we alternate? And even then, which combination should be used first? More seriously, the writing can become so bogged down in a morass of combinations that it becomes an effort to comprehend the intended message. Especially when the writing is complex anyway (as in quasi-legal documents, for instance), the additional complexity

created by combinations could be the last straw in comprehensibility:

- (2) In general, the person taking on the headship should not be required to forego indefinitely a sabbatical leave to which he or she would have been entitled as a normal member of the academic staff, and she or he should be entitled to some special consideration on the conclusion of a normal period of appointment because her or his duties as head will in most cases have prevented him or her from pursuing her or his scholarly and professional activities to the same degree as her or his colleagues. (adapted from Queen's University Procedures, Appointment of Deans and Heads, 1971)

We could, of course, always put the female (or more usually but indistinguishably the male) pronoun first rather than alternate as shown above. In some instances the placing can have meaning. For example, it used to be normal to give female status for an English teacher and male status for her pupil; this system could be used in the positioning of female and male pronouns in combinations:

- (3) To check whether a student has actually read a book, the teacher can ask him/her to open it at a certain page and read aloud a given paragraph. Then s/he can ask him/her to use in his/her own sentences some of the expressions and structures in the paragraph. (adapted from the sexist version in English Teaching Forum, Apr 83, P21)

But would readers understand the system? Surely there must be better ways.

Another method is to alternate with single pronouns (first she, then him, then her, then he, etc.) systematically even when no real meaning is intended by the use of female or male pronouns. This can be very confusing however and, like the other methods discussed here, it has the disadvantage that it calls attention to the fact that the writer is deliberately attempting to be "fair" to both sexes. Ideally this should be so, but not apparent or obvious.

Repetition, Substitution and Ellipsis

A cline of markedness has long been recognized (Huddleston et al, 1976) in the use of repetition, substitution and ellipsis. Whenever there is a real choice in the context, repetition is most marked, substitution quite marked, and ellipsis the unmarked form. Without the use of personal pronouns available to us, a void occurs in our natural pattern of choices, and repetition becomes much more necessary. Where ellipsis can be used, it usually is. Here is an example using a synonym and ellipsis:

- (4) When your infant becomes a toddler, around 9 kg, a child safety seat facing the front of the vehicle may be used. At

this weight your child has enough muscle control to sit up alone and is better able to withstand the forces of a crash. ("Life is Precious" Leaflet, Ontario Ministry of Transportation and Communications, 1991)

While ellipsis is ideal for many instances of subject connection, it is not always possible, and the markedness of repetition becomes noticeable:

- (5) If your toddler's head is more than halfway above the top of the child safety seat, your child has outgrown the seat. It's time to use a lap belt. The lap belt should be fitted low on your child's hips across the pelvis. A full seat belt assembly can be used provided the shoulder harness doesn't lie flat across your child's face and neck. If it does, tuck the shoulder harness behind your child's back.
ibid.

Some of the repetition has been avoided by the synonym and use of the article (the pelvis instead of the child's pelvis). The remaining repetition is still very marked and not ideal, and the difficulty is aggravated by separate sentences 2 and 3 instead of using a non-defining relative pronoun. Synonyms can often be used to great advantage:

- (6) If your infant weighs less than 9 kg (20 lbs.) you must place the child safety seat so the child faces the back of the vehicle. This is necessary so the forces of a collision are spread evenly across the strongest parts of your baby's body and into the back of the child safety seat. If you place your child safety seat facing the front of the vehicle, your small child may not be able to withstand the impact forces on the chest and pelvis. ibid.

With the child safety seat being unalterable as the name of a product, the writer has used synonyms and again the article (the chest and pelvis) to avoid sexist pronouns with an acceptable level of marking.

The last two examples make effective use of the personal you and your to avoid the impersonal the driver and attendant difficulties with sexist pronouns. The bigger problem with reference to the child remains, however.

Plurals and Individuality

The simple act of changing the topic from singular to plural is often viewed as the complete answer to all sexist pronoun problems. While it is a useful device on many occasions, it is rarely appropriate when the generic sense is intended. The unappointed candidate, the student in a special case, the holder of a position or the winner of an award from time to time, the plaintiff or defendant in a case, the tenant or landlord under specific conditions - all these must be singular to retain the

intended meaning. Use of plurals is tempting in the following:

- (7) Chimps are like us in a number of ways. When they greet they hug and kiss. When one is frightened or sad, his friends comfort him by patting his back and holding his hand. (Chimpanzee Family, Jane Goodall, Toronto: Madison Marketing, 1991)

As the first two sentences are in the plural, it would seem appropriate to continue in that way - and thus avoid the sexist pronouns. However, the writer is discussing one particular unidentified (male or female) chimpanzee, and the singular is necessary. The singular would have implied continued discussion of all chimpanzees in the groups - and then they would have no unfrightened friends to help them. A reasonable solution might be "Friends provide comfort by patting on the back and holding hands" although the sense of intimacy is lost, and the sentence would be marginally acceptable. The you/your possibility does not work here of course.

The need to insist on individuality becomes more important when stipulating requirements which each person must meet:

- (8) **METL Technical Report**

To encourage close observation and to develop the facility of concise and accurate expression by text and illustration, the student is expected to write a technical report about his summer employment. (Part of Course Description, Queen's University, Applied Science Calendar, 1987/88, P108)

The possessive form is necessary to prevent reports about summer employment in general, but the plural cannot be used, or else the requirement that each student must write a report is vague as students could work in groups and still write reports. Here is a more complex example where plurals are unacceptable:

- (9) Assuming a student attempts four or more courses during the year, and his average performance in the courses which he has passed is less than 60 per cent, he will be placed on probation. By the end of his probationary period he must have raised his overall average on all courses which he has passed to at least 60 per cent, or he will be required to withdraw. (Queen's University Graduate Studies Calendar, 1983)

We cannot stipulate the average performance in courses which they have passed or that they must raise their overall average. It is essential that we deal with each student as an individual - and of course the student may be of either sex. We can achieve this by using a defining relative clause (A student who...) and a post-modifying agentless, tenseless passive (in courses passed) in the first sentence, and by rewriting the second sentence as:

"By the end of the probationary period the student's overall average on courses passed must have been raised to at least 60 per cent, or withdrawal will result."

In the last two examples, you and your could be used as long as the writing style for the whole document is changed - and we must question whether it is acceptable to do that just to achieve the aim of avoiding sexist pronouns. The use of you and your cannot be used in the next example, however, and plurals are unsuitable when two sets of people are being discussed. Students are pluralized, but the teacher is not - leading to a complex series of sexist pronouns:

- (10) A teacher who shares his students' native language is in a better position to understand easily the sort of difficulties his students have in learning the language, since he has passed through the same stages of learning as they. He should therefore help learners surmount their difficulties by developing and using the same learning strategies as those he used himself when he was learning English. He should explain to them what they should do in order to develop a keen eye for new and/or difficult words... (English Teaching Forum, Apr 83, P23)

Instead of using plurals for the teacher as well as the students, we could use a variety of techniques to achieve our aim. In the first sentence, we can delete the first possessive to use a null article, change his students to they, and use both to avoid the he and the very awkward they at the end. In the second sentence, we could use a synonym The instructor, marked repetition and marked ellipsis to arrive at a reasonably acceptable non-sexist version:

"A teacher who shares students' native language is in a better position to understand easily the sort of difficulties they have in learning the language, since both have passed through the same stages of learning. The instructor should therefore help learners surmount strategies the instructor used when learning English - and should explain to them what they should do to develop a keen eye for new and/or difficult words..."

There is some change of meaning and emphasis here, and the marked forms are less than ideal. But that appears to be the price we must pay to avoid sexist pronouns.

Agentless Passives

Another obvious way to avoid sexist pronouns is to use the agentless passive instead of the active: "It was done." rather than "She did it." Removal of the sexist pronoun from the following is simple and ironically revealing:

- (11) In general, we can say that a person uses the passive when he does not consider the agent especially important and does

not wish to call attention to the agent. (Using English: Your Second Language, D. Danielson, Prentice-Hall, 1973, P58)

If the writer had tried to avoid the sexist he, she would have realized one of the other functions of the English passive:

"In general, we can say that the passive is used when a person does not consider the agent especially important and does not wish to call attention to the agent."

(The marked repetition of the agent probably arises from the writer's apprehension about using it for the usually-animate agent - and the need to avoid a further sexist pronoun!)

Thus when the agent is not important or is understood in the context, the agentless passive may be a suitable means of avoiding sexist pronouns. But it is no panacea; it often can only be used in combination with other methods:

(12) If a student wants to study at another university outside Ontario:

- (a) he must register as a full time resident and he must pay his fees at the other university. During his period away from this university, he must maintain his registration here; however he will be exempted from paying his tuition fees for that period. For the period to be counted towards his residence, the work he performs must be equivalent to that which he would have accomplished over a similar period at this university. (Queen's University Graduate Calendar, 1983)

The need for individuality here prevents us from using plurals, and the passive can only be used sparingly once the agent is clearly established. The solution is to use a combination of repetition, null and definite articles, ellipsis and agentive and agentless passives:

- "(a) the student must register as a full time resident and pay fees at the other university. During the period away from this university, the student must retain registration here, but will be exempted from paying tuition fees for that period. For the period to be counted towards residence, the work performed by the student must be equivalent to that which would have been accomplished over a similar period at this university."

The writer of the following text uses non-defining and then defining tenseless agentless passives effectively to remove some of the sexist pronouns:

- (13) It should be pointed out that the EFL instructor with sev-

eral courses, teaching several classes each day, cannot keep his teaching schedule organized effectively without careful, detailed records of what he has done in each class. Such records, written after class, are in addition to the outlined lesson prepared before class. (English Teaching Forum, Apr 83, P41)

Although the passive is useful here, it cannot be used consistently without adversely affecting style and clarity. The whole of the first sentence would have to be recast, and it would have to contain an agentive passive ("records of work done by the teacher in each class") to keep the meaning restricted to the teacher's activities. Instead we could (with some loss of specificity) use the definite article for his, and then use "records of teaching activities in each class".

Possessives and Articles

As we have already seen (see Examples 7 and 10), use of the null or definite article instead of the possessive her or his often appears slightly odd, as the personal reference to a specific person is no longer included. Sometimes such changes are acceptable, and occasionally they are as clear as the original sexist version. Usually, however, avoidance of possessive forms in this way causes some difficulty in the writing, and a cline of acceptability can be recognized, probably with considerable idiolectic and dialectic variations. The following appears to be quite high on the cline of acceptability, yet there is still some discernible loss in style and intimacy if not in actual meaning:

- (14) Since advanced students, by definition, have wider more flexible language skills than lower-level students, the advanced-level teacher has a particularly challenging task in making sure his students have a sufficient variety of classroom opportunities to use and develop those skills. (English Teaching Forum, Apr 83, P30)

Use of students is perhaps a little vague, and the students could be confusing as there are two groups of students in the subordinate clause. Consistent plurals would work here, though that may cause difficulties elsewhere in the text.

Possessive sexist pronouns are often the most difficult ones to avoid. It is the possessives that requires the greatest thought in the following:

- (15) There are, however, guidelines which are unrelated to the particular field or industry in which a plant owner operates, that can appreciably facilitate his decision. To begin with, let us assume that the process of development of an existing plant or facility has left some departments with nowhere in which they can expand, has left some parts of the operation in inappropriate facilities with, for example, too little headroom, too small a column spacing or too little

crane capacity, and is as a result generally giving the owner a far less than efficient operation.

Having assessed the manner in which his particular industry is likely to expand over the future years, the plant manager or engineer may not experience too much trouble in roughly estimating an optimum layout for a plant which could serve him efficiently for at least ten years into the future. He will then find, however, that there is no way in which the existing production volume of the plant can support the immediate construction cost of the complete facility. This is because he must obviously initiate the construction process on his current operational budget; while the reason he needs the new facilities is because his operational budget is too low. (Engineering Digest)

Most of the sexist pronouns can easily be accounted for:

which could serve him becomes which could operate, using an intransitive verb to avoid the object him

He will then find becomes The owner will then find or The entrepreneur will then find as neither is too marked because of the length of the sentences

he must obviously initiate the construction process becomes the construction process must obviously be initiated, using the agentless passive where the agent is clear

his current operational budget becomes the current operational budget, relying on untriggered associative connection (Hawkins, 1968) "the current operational budget for the owner's business"

he needs the facilities becomes the facilities are needed, again using an agentless passive

his operational budget becomes the operational budget, again with associative connection

That leaves the difficult possessives his decision and his particular industry. The first of these could be changed to the decision, but not without some loss of personal connection; earlier discussions about decisions helps us make this change. The second difficult possessive (his particular industry) is cataphoric because of the difficulty of making a possessive of the plant manager or engineer. Thus one approach would be to use a short referent (e.g. the owner) and to place it first (the owner's particular industry). We then have to deal with he may not experience. As the agentless passive (not too much trouble may be experienced) is rather awkward, we may have to use an anticipatory it (it may be quite easy to prepare a rough estimate of), where the agentive clause for the owner is implicit.

Conclusions

It should now be clear that the traditional methods of avoiding sexist pronouns have severe limitations. Writers and editors need to use other methods as well if they are to produce prose that is sensitive not only to meaning and emphasis, but also to style, tone and the needs for effective inter-sentential connection.

As, in actual English use, sexist pronouns usually occur in clusters, the usual method of discussion and analysis by using isolated sentences with a single offending sexist form is inappropriate. We need to be able to avoid sexist pronouns in larger stretches of text, where the need for a measure of uniformity of approach is needed over many paragraphs or pages. To do this, we need to be able to use many other methods than the few usually mentioned.

Suggested Sequence for Trying Methods

When there were only a handful of recognized methods of avoiding sexist pronouns, we could simply try them all in turn to find one reasonably suitable - and if we failed, we could use combinations. Now that we have 50 other methods, however, we need a more rational approach. For possible computer applications, a program could be written to offer the methods most likely to be acceptable before suggesting some of the more esoteric - but nevertheless occasionally useful - methods. The following preliminary sequence is intended as the first rough ideas on such a sequence.

It seems sensible to try the methods closely related to personal substitution first, and then to move out to the more loosely connected methods. Thus we should first consider the other substitute forms - first plurals and then I, you, we, and one if the style permits. Partial and then full repetition should then be tried, often in conjunction with synonymy and ellipsis if possible.

Where sentences are short, they can often be combined using relative or non-finite or verbless clauses to remove the sexist reference, whereas the other forms of basic continuity (generic nouns, acronyms and naming) are more suitable where the sentences are longer. The implicit forms (passive, anticipatory it, implicit object or intransitive verb, etc.) should then be tried, but possessive forms are more likely to yield to the use of the article system.

Once we gain experience in using the many methods, we should eventually be able to refine this approach based on the most likely methods for success in various grammatical and textual environments.

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DEATH OF VINYL, RISE OF THE JEWEL BOX:
MUSIC LINER NOTES AS A GENRE

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The headline read: "Vinyl's final note--R.I.P. as CD sounds death knell for the LP." In this *New York Times* article reprinted in the *Des Moines Register* of April 30, 1990, the Recording Industry Association of America reports that vinyl record albums now account for less than 4 percent of recording industry sales in the U.S. A & M Records' David Steffen made this data more succinct: "There's an entire generation that has never owned a turntable."

Indeed, when I went to buy a sound system that could handle my post-divorce share of LP's, I had the hardest time finding a turntable. And just last week I went into a local music chain, Co-op Tapes and Records, and was amazed to see that almost all of the vinyl albums they stocked were used records. The figures for 1989 reported by the Recording Industry Association of America show that for every vinyl album, 13 cassette tapes and 6 compact discs were sold. And undoubtedly those figures have already changed and will continue to change, as car cassette decks are replaced by CD players, record companies stop issuing albums on vinyl (indeed, vinyl 45's are already gone), MTV continues its influence and more video laser discs are available to the public, and the digital audio tape format makes its debut.

The technological explosion in the sound recording industry that began just after World War II continues to escalate, changing much faster than I can keep up with it. Only three years ago I started this project--to examine the packaging texts or "liner notes" that accompany music recordings, to analyze music liner notes as a discourse genre--yet I am continually amazed by the meta-glosses or "spins" that are put on those packaging texts. The change in recording formats does affect the way the music is packaged, labeled, and marketed. Just this summer, for example, I bought CD's of *Fleetwood Mac* and Van Morrison's *Moondance*, two albums from the 70's that I also have in vinyl LP format. On the back of the "long box" or outer package of each CD, besides the listing of songs, is text about the recording artist(s)--biographical/historical discographies. Of course, this information was not included on the original recordings' LP packages. Perhaps Warner Brothers, the company issuing the CD's, was aware that many of the consumers for these two albums would be buying the CD to fill in an early-years gap in a complete collection, or could be enticed to buy the CD of an older album by now-famous artists.

In the music business, as in all media industries, there seems to be this kind of overlap of purposes or a blurring of lines between the journalistic aim to inform the public versus the

capitalistic goal to capture the largest share of the market by entertaining the public. This compounding of purposes and effects is also found in music liner notes. The primary aim of the recording's packaging, including the liner notes, is to sell the product, to let consumers know what entertainment they're getting for their money. Overall, then, the text of music liner notes should be examined in a framework of rhetorical discourse, since their underlying purpose is persuasion.

Furthermore, despite changes in format, I contend that music liner notes--the text included with the marketed packaging of the recording--constitute a distinct genre of discourse. My classroom standby, *A Handbook to Literature* (1978), defines genre as a term for types or categories into which literary works are grouped according to form or technique, or, sometimes, subject matter. Genre classification, according to this source, implies that there are groups of formal or technical characteristics existing among works of the same "kind" regardless of time or place of composition, author, or subject matter (239-40). Just using this literary definition, music liner notes--despite their many styles--can be seen as a discourse genre, distinct even from the notes lining book jackets, videotapes, groceries, appliances, etc. Yet there are so many variables intertwined with the context of producing music liner notes that a discourse-wide definition of genre is needed.

Speech Act theory provides a way of discussing the context of discourse, including the intentions, attitudes, and expectations of the participants in the speech act, the relationships existing between the participants, and the unspoken rules and conventions that are understood to be in play. These rules and conventions are the appropriateness conditions forming part of the knowledge which participants share and on which they rely to use language "correctly" and effectively, both in producing and understanding texts. Mary Louise Pratt, in *Toward a Speech Act Theory of Literary Discourse* (1977), uses these precepts of Grice's Cooperative Principle to claim that "genres and subgenres can to a great extent be defined as systems of appropriateness conditions" (86).

In applying Speech Act Theory to works of fiction, Pratt mentions two points that could be applied to any published discourse, including music liner notes: first, "far from being autonomous, self-contained, self-motivating, context-free objects which exist independently from the 'pragmatic' concerns of 'everyday' discourse, literary works take place in a context, and like any other utterance they cannot be described apart from that context (115)"; and second, "the literary pre-paration and pre-selection processes are designed to eliminate failures [of the Cooperative Principle] which result from carelessness or lack of skill. The more selection and revision processes we know a work has gone through, the less likely we will be to attribute apparent inconsistencies and inappropriatenesses to random and unintentional error" (170).

Consider this second point especially in relation to music liner notes, the result, usually, of a massive collaborative artistic and marketing project. Because music liner notes are produced for a public forum, even when a particular audience is targeted, any text additional to a basic listing of contents is meant to be interpreted--in a way similar to interpretation of "literary" texts--within the discourse context of the package. This Gricean concept of implicature is especially useful in analyzing the higher-level types of music liner notes which I will outline below.

Let's examine the variables at play in this music liner notes "speech act" to establish a system of types from which can be culled the appropriateness conditions for music packaging discourse as a genre. Basically, the consumer (or reader) expects to read about the content of the package, and the writer or assembler of the liner notes (often anonymous) knows this. Context determines how much more text than listing contents, and what kind of additional text in what style, will be offered. Context can include how well-known or how commercial the recording artists are (and this aspect can be influenced by the amount of radio/video air-time the recording receives, as well as how long the artists have been recording), whether or not the artists or their companies are trying to tap new markets beyond the confines of a given musical style, economic constraints, and the reading habits and expectations of the audience (whether it's targeted or not)--which in turn interact with the status of the recording artists, the format of the recorded product, and the kind of music offered (pop, rock, classical, country, blues, heavy metal, bluegrass, rhythm & blues, rap, jazz, opera, folk, ethnic--just to name a few).

One way to set up a taxonomy of music liner notes is to examine the possible contextual variables of these packaging texts within the traditional elements of rhetoric, especially since music liner notes have an overall persuasive or marketing intent: purpose, audience, persona, and content and style. Each of these aspects, of course, can be subdivided.

PURPOSE. In traditional composition classes, students are told that the purpose for writing can be informative, persuasive, or aesthetic. But I have found these labels limiting, so I have renamed them with an aim to classifying music liner notes:

1. basic informative--listings of song titles, music/production/composition personnel, and times; may include other information, such as place of recording, miscellaneous thanks.
2. advertising--blatantly "persuasive," including, for example, blurbs about the recording artist's previous releases.
3. critical--higher-level persuasive such as reviews and testimonials.
4. educational--higher-level informative, including biographies, histories, definitions, production narratives, and other types of background.

5. aesthetic--inclusion of song lyrics, extra poems, or stories.

6. epideictic--"ceremonial" text designed to promote solidarity between audience and artists; aesthetic liner notes may also have this kind of epideictic purpose.

These sub-purposes may and sometimes do overlap, but all liner notes for recording packages must have the basic informative aspect to fulfill the primary appropriateness condition for this discourse genre. Any other of the five aims above are additional, and they may appear in any combination. Of course, these "rules" of the liner notes game can be flouted to produce another layer of meaning. Consider the first Moby Grape LP, where not even the song titles are listed on the package (this is quite a violation of the liner notes speech act!); or Randy Newman's liner notes giving song lyrics but not in the same order in which the songs are heard; or the group REM (noted for its indecipherable song lyrics) not providing printed lyrics, when that's probably the one aspect that an audience would expect to read.

What's even more complex in this music liner notes speech act is that the other components of rhetoric--audience, persona, content and style--can interact to determine "purpose."

AUDIENCE. Audience, in fact, may be the most important component in the music liner notes speech act because, in this context, audience means consumers. Audience characteristics can include the type of music preferred or bought, the type of format preferred or bought, socio-economic class, education level, age, gender. Larry Canale, in the magazine *CD Review*, offers insight about the importance of audience to music liner notes in a column from December 1989 entitled "CD Booklet Blues." He says:

The compact disc's advantages . . . include better sound and a more convenient size. . . . But the CD has been no improvement, overall [vs. LP's], in the area of liner notes. I'm not talking about the often extensive booklets packaged in new recordings and new compilations, but the lame, lazy attempts we find in too many reissues. . . . Sonically, record labels have succeeded. . . . But not so with the way record companies are presenting newly reissued CD's. At the very minimum, labels owe it to consumers to provide the original liner notes. . . basic information--the players, producers, engineers. Part of the fun in spending \$6.99 for a new LP in the late 70's was . . . the lyrics on a Fleetwood Mac album or the exhaustive playing and recording credits on an ELO release. But how many times have you opened a CD booklet and found merely a song list, or an advertisement for other titles on the same label, or--worse--two blank white pages?

However, Canale also quotes Pete Howard, editor of the monthly *International CD Exchange*, that now most record companies are seeing the light. "Labels have done some improving and growing up the past few years, largely because of consumer complaints," notes

Howard, who also says that around half the complaints he receives at his newsletter involve packaging/liner notes (5).

So, audience expectation has a great impact on the other rhetorical elements in this speech act, particularly the style in which the liner notes are written and their primary purpose. Further, what the audience expects in liner notes often corresponds to the type of music on the sound recording. For example, blues collectors and opera enthusiasts look forward to reading extensive educational liner notes, while followers of particular artists want to be "sold" by persuasive or epideictic prose.

PERSONA. There are two levels here, both of which affect the type of liner notes produced. First, the persona of the liner notes writer: whether s/he's acknowledged or not, and if so, their status within that music type's community and in relation to the recording artists. Second, the persona(e) of the recording artist(s) and/or composers, their celebrity status, and where in their career this particular recording falls (not to mention the kind of image the artists wish to project!).

Bob Dylan is just one interesting example of a recording artist whose changing status affects audience expectations and the kinds of liner notes presented. When Dylan was a brand-new recording artist, the notes were written by well-known reviewers and musicologists praising his folk-music roots and live performing style. As he became better-known, especially as an unconventional songwriter, the liner notes consisted of printed song lyrics and/or free-form poems or essays written by Dylan, until finally, as he became commercially successful and almost revered in the music business, the aesthetic and epideictic text of the earlier albums was replaced by photos and basic notes listing songs and other legendary musicians—a sure sign of Dylan's "legitimacy."

CONTENT AND STYLE. Music liner notes can include combinations of and variations on: listings, production notes, narratives, biographies, interviews, histories and other background information, definitions, lyric sheets, summaries, reviews, reflective essays, poems, letters Note that each of these types is itself a sub-genre, and each can be written in a number of different styles.

In addition to the variables contained in the traditional components of rhetoric, there are other elements of context in the music liner notes speech act. These include: the type of music contained in the package (determined through intended marketing or consumer perception); the format of the package (78's, 45's, EP's, LP's, 8-tracks, cassette tapes, CD's); whether the recording is a reissue (and, if so, whether it's remastered and/or reissued on another label); whether it's available in more than one format; whether it's compilation; whether there are accompanying music videos; the reputation and image of the record

company.

That's a number of variables to consider in constructing a taxonomy of music liner notes. And, I must admit, I have been confused by the supposedly distinct boundary between purpose and style. Perhaps that's because, as Linda Flower has pointed out (1988), "Any speech act is highly overdetermined. It is not the result of any single purpose, but the confluence of many. . . . We need an interactive picture of writing as a purposeful act. Such a picture would include a broad cultural perspective in which purpose is inseparable from the social assumptions that help shape the text--assumptions that are often unexamined and may even seem unreachable" (530). Michael Carter (1987) further defines style as "a response to the writer's purpose, audience, and genre--the rhetorical situation. . . . Style, then, is not subject only to the writer's whim; rather, the choices of the writer are constrained by the situation" (191).

Given that, to try to define types for the genre of music liner notes, I decided to eliminate some of the variables. For this paper I surveyed music packages in only two formats: LP and CD. A preliminary survey of liner notes for recordings in my extensive collection helped me to come up with a taxonomy based on the purposes I previously outlined: basic informative, advertising, critical, educational, aesthetic, and epideictic.

Further examination reveals to me that these six categories progress in a hierarchy, and that the six categories exhibit two distinct sub-purposes within the overall purpose of persuasion. Basic informative, advertising, and critical types of liner notes I label as selling. I hypothesize that liner notes of these types are intended for a wider or more diverse audience, and that the recording artists they document are either just beginning their careers or are extremely well-known. Educational, aesthetic, and epideictic liner notes I label as reinforcing. I hypothesize that notes of these types are intended for a more exclusive audience and the work they document comes later in the artists' corpus and/or the artists are either not well-known or they are known as "artists" rather than as pop stars.

Further study of this breakdown into "selling" or "reinforcing" categories of music liner notes may confirm my hypothesis that the more aggressively marketed the music package is, the lower on the hierarchy of six--the selling end--the liner notes will be.

Perhaps the most enlightening way to define music liner notes as a genre is to look at a parody. As a type, the Mothers of Invention's *Freak Out!* liner notes could be considered aesthetic (to make us laugh at the absurdity of what can be included on a pop music collection) but also epideictic: the audience has to be insiders--they have to know both the basic appropriateness conditions for liner notes as well as the reputation of Zappa's group--to get the joke. Indeed, the Mothers are making fun of the typically solemn ceremonial text of pop music liner notes. The *Freak Out!* LP opens up so it includes three pages of irreverent notes including a definition of "freaking out," biographical

trivia about the musicians, "relevant quotes" ("No commercial potential"--A VERY IMPORTANT MAN AT COLUMBIA RECORDS), "more relevant quotes," "notes on the compositions included herein" (for HELP, I'M A ROCK: "dedicated to Elvis Presley. Note the interesting formal structure and the stunning four-part barbershop harmony toward the end. Note the obvious lack of commercial potential. Ho hum."), eight columns of people thanked, an "ad" for a tourist guide to "freak-out hot-spots" in L.A., and a scathing "testimonial" from the fictional Suzy Creamcheese.

Other parodies--the fictional history on the Traveling Wilburys CD, and the self-deprecating narratives about musicians and songs on The Holy Modal Rounders LP--show that music liner notes should be considered a genre because it can be parodied as a speech act.

I entitled this paper "Death of Vinyl, Rise of the Jewel Box" before the colon because format seems to be changing the nature of the music liner notes speech act. It's interesting to note how some compact disc reissues of albums contain more extensive inner booklet liner notes than the original packages. For example, Chess Records is reissuing a whole series of old blues masters' recordings on CD. Even before the Muddy Waters and Robert Johnson boxes--which include heavily researched accompanying books in addition to individual jewel-box booklets for each CD in the collection--the single Howlin' Wolf *The Real Folk Blues* CD package includes, in addition to the LP's original liner notes, much more information about which musicians played on which cuts and when the recordings were made. This is important information to anyone who's into the blues--some would say essential information.

Yet the liner notes on cassette tapes--and keep in mind that this medium medium chronologically still outsells even CD's--rarely include more than the basic informative listings.

Why? Could the lack of liner notes on cassettes be because CD's and LP's cost more? Possibly the target market for cassettes dictates tapes' relative lack of liner notes text: if you're a cassette person, you're more interested in how fast you can open up the packet and pop the tape into the player, and especially if you're in your car, you don't really have the time or will to read the cassette's package text. Compare this with LP's, where you're almost forced to read the liner notes as you get the record out of the sleeve. And CD liner notes are packaged so that while you don't have to read them, you want to open that cute booklet and see what's there despite the reduced typography that makes them physically harder to read than LP liner notes.

Could it be that the consumers who buy CD's are more text-oriented? More able to afford and/or more in tune with the newest sound technology? Better educated? Could they want or expect more liner notes in the first place? Remember, there is a large segment of the baby boom that found solidarity in the music of the 50's and 60's and 70's, and many of that population--who continue to collect LP's and tapes and choose to add both new and replacement CD's--love to read liner notes. Could it be that the record

companies know all this and design liner notes for different formats accordingly?

Maybe the key word here is solidarity, the basis for the kind of ceremonial rhetoric I've labeled as "epideictic." Readers already have to know who Andrew Loog Oldham is to understand, much less appreciate, his testimonial on the Rolling Stones' *12 X 5*. Readers have to already know the allusions to *Blonde on Blonde* and *Music From Big Pink* to relate to the liner notes and the music on Procol Harum's *Shine On Brightly*. Readers already have to have their own concept of what "the blues" is in order to recognize the philosophy in Willie Dixon's liner notes to the Howlin' Wolf album. All of these examples show a speech act at work, an interactive process that makes audience/consumers/readers insiders once they know the rules of the genre.

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PUNCTUATION AND ITS IMPACT ON READERS¹

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Most modern handbooks address punctuation in a very utilitarian way, identifying its role as clarifying meaning and indicating grammatical structure. Such a role allows little opportunity for punctuation to make a meaningful contribution to a written message. Consequently, readers and writers, especially young readers and writers, seem to have difficulty in taking the conventions of punctuating a text seriously. The position advocated here is that punctuation can in fact make a difference--a measurable difference--in readers' responses to a text.

For this study different versions of the same story were distributed to three groups of college and university freshmen. The story is about a little girl who gets sick after a trip to the circus. It is told from the view point of her brother. The three versions of the story (reproduced in the appendix) differ only in punctuation. Every single word is exactly the same in all three versions.² One version (called emotional) uses punctuation to help develop the mood of the story as well as to mark major structures; another (called ordinary) employs punctuation primarily to separate grammatical structures in much the way that handbooks advocate; the third (called distracting) places punctuation without consideration of meaning and with little attention to grammatical structure.

All of the punctuation treated in this study relates to sentences, not words. Periods in abbreviations, and apostrophes occur in the text, but they are used consistently in all three versions and are not included in the total marks of punctuation given for each version. No difference in any version occurs until the end of the second sentence. Altogether, thirty of the points are identical in the three versions. Most of the variation involves internal punctuation. The number of sentences is

¹ The research reported here owes much to the cooperation of William E. Rivers, USC-Columbia and Nancy Posselt, Midlands Tech. It is part of an ongoing project initially funded by an NCTE Research Foundation Grant.

² The story is a slightly modified version of one I have been using for several years to collect data on variation in punctuation.

relatively consistent: varying from 26 to 28, depending on how independent clauses are punctuated.

The first version, the emotional version, is punctuated rhetorically--to enhance emotional impact. It has 26 sentences and contains 41 marks of punctuation. In addition to 23 periods marking the ends of sentences, there are 12 commas, one semi-colon, two exclamation points, a question mark, an ellipsis and a dash. The text is sparsely punctuated in a style known as 'light' or 'open' punctuation especially popular in British English (Little 1984:379-80). When commas are used, they indicate a pause in the flow of the story, rather than a grammatical structure per se. The exclamation points, ellipsis and dash are used to create a sense of anticipation or apprehension. Overall the usage is not so innovative as to be flashy, but it is not strictly speaking, conventional. For example, the last sentence of this version ends with a dash, which is not usually an end point.

The ordinary version is punctuated in a more or less conventional way. I cannot vouch for its acceptance by all usage experts because there are some phrases in which the wording creates problems:

Her little face was bright red from the fever; her eyes, glazed and hair, stringy and sweaty. (I am not sure what the 'standard' punctuation for that phrase would be.)

In this version there are 54 marks of structural punctuation distributed through 27 sentences. The style is fairly 'heavy' or 'close.' Most, but not all, initial adverbials are followed by commas; most, but not all, conjunctions are preceded by commas. The text contains 26 periods, 26 commas, a question mark and a semi-colon.

The final version, the distracting version, is punctuated in premeditated violation of punctuating conventions and of good sense. The first two sentences are punctuated conventionally, but subsequent sentences contain marks in unusual places:

They quickly ushered him into the small bedroom, upstairs, where Amy lay breathing slowly...and with a deep rasping sound. (ellipsis in original)

This version contains 57 marks of punctuation in 28 sentences. There are 27 periods, 26 commas, two dashes, an ellipsis and a question mark. Although commas are placed in strange places, few are extravagantly illogical or bizarre.

Instructions to the students accurately informed them that they were being asked to participate in a study of how people responded to different versions of the same story. Punctuation, however, was never mentioned, and most of the teachers administering the questionnaire

were not even aware that punctuation was at issue. All students in a class received one version of the story. The questionnaire was initially administered to freshman English classes in the fall of 1988. At that time 1828 questionnaires were collected and tabulated. 683 students read the emotional version, 447 read the ordinary version, and 698 read the distracting version. The discrepancy was just happenstance--the versions were distributed in equal numbers, but not all questionnaires were returned. In order to make the sample more evenly distributed, I collected additional data using the ordinary version in the summer of 1989. The study now includes a total of 2004 subjects, 623 readers of the ordinary version.

After reading the story, students were asked to record their opinions/responses to the story, to the boy, to the girl and to the relationship between the two children. They were given a range from 1 to 8 between two extremes. (A copy of the questions is included in the appendix.)

well written

1

2

3

4

5

6

7

8

poorly written

The questions were designed to address reader impressions of the story--how well it was written, how easy to read and understand as well as their impressions of what kind of story it was--emotional, happy, realistic and serious. Other questions related to the two characters, John and Amy. Some were very general, related to their appearance, not the story, for example: pretty/ugly, handsome/ugly, strong/weak. Some were a matter of the character's state of mind--happy, silly, sensitive, aware of reality, brave, emotionally strong. For Amy two questions related specifically to her physical state, which is crucial to the story. I particularly wanted to see if the punctuation could affect the way readers perceived Amy's prognosis, her chances of survival.

Before looking at the statistical results, it is important to consider the nature of the data obtained from these questionnaires. For several reasons parametric statistical measures such as t-tests and anova are not appropriate. We are dealing with ordinal scale variables which are not measured at fixed intervals. None of the dependent variables display a normal distribution pattern. Furthermore, the variances are widely divergent. Consequently, for these comparisons, nonparametric measures (multiple Wilcoxon tests and the Kruskal-Wallis test) have been chosen.³

³ The choice of statistical measures was made with the assistance of USC statistics consultant, Lily Chang. The mainframe version of the SAS statistical analysis package was used to perform all procedures.

In this study the null hypothesis is a logical expectation. The suspicion that only English teachers pay any attention to punctuation is not uncommon. However, the results reveal that such skepticism is uncalled for. Several variables meet the $p > .05$ standard of significance on the Kruskal-Wallis test of all three versions of the story:

S1--well/poorly written

(Kruskal-Wallis $X^2 = 25.87$, $p > .0001$)

S2--easy/hard to understand

(Kruskal-Wallis $X^2 = 30.01$, $p > .0001$)

S3--emotional/objective

(Kruskal-Wallis $X^2 = 9.81$, $p > .0074$)

S5--easy/difficult to read

(Kruskal-Wallis $X^2 = 21.11$, $p > .0001$)

S6--realistic/unrealistic

(Kruskal-Wallis $X^2 = 6.25$, $p > .0439$)

S7--serious/silly

(Kruskal-Wallis $X^2 = 7.50$, $p > .0235$)

A1--healthy/sick

(Kruskal-Wallis $X^2 = 7.65$, $p > .0219$)

A3--recovering/dying

(Kruskal-Wallis $X^2 = 8.37$, $p > .0152$)⁴

Almost all of the story variables (S1 -- S7) yield statistically significant differences based on punctuation differences, and two of the character variables, specifically the two concerning Amy's health. The null hypothesis must be rejected. Punctuation does indeed have an impact on readers of narrative texts.

This overall impact is confirmed by significant results obtained for the sum of all variables: Kruskal-Wallis $X^2 = 17.40$ $p > .0002$. The sum of story variables and the sums of both types of story variables show a significant effect:

Story (S1 -- S7)

(Kruskal-Wallis $X^2 = 29.60$, $p > .0001$)

Text (S1, S2, S5)

(Kruskal-Wallis $X^2 = 36.60$, $p > .0001$)

Impression (S3, S4, S6, S7)

(Kruskal-Wallis $X^2 = 13.61$, $p > .0011$)

John (J1 -- J6)

(Kruskal-Wallis $X^2 = 1.41$, $p > .4939$)

⁴ In addition one of the John variables is so close to the predetermined level of significance that it should also be mentioned: J5--silly/serious (Kruskal-Wallis $X^2 = 5.99$, $p > .0501$)

Amy (A1 -- A5)

(Kruskal-Wallis $X^2=2.59$, $p > .2737$)

Children's Relationship (CR1 -- CR4)

(Kruskal-Wallis $X^2=1.75$, $p > .4171$)

However, the results of the other groups do not yield significant results.

To determine the between-group differences in those variables with significant results from the Kruskal-Wallis tests, post hoc analyses using multiple Wilcoxon tests were performed. (Type I error was controlled using the Bonferroni inequality.) For these two-tailed tests, $\alpha = .0083$. Results indicate differences between the distracting version and both the emotional and ordinary versions when all variables are added.

Distracting compared to Emotional

prob $> |Z| = 0.0001$

Distracting compared to Ordinary

prob $> |Z| = 0.0008$

Emotional compared to Ordinary

prob $> |Z| = 0.8809$

Comparison of the emotional and ordinary versions, however, did not yield significant differences. Post hoc tests for the sum of story variables, the sum of text variables (S1, S2, S5) and the sum of impression variables (S3, S4, S6, S7) were performed with the following results:

Story:

Distracting compared to Emotional

prob $> |Z| = 0.0000$

Distracting compared to Ordinary

prob $> |Z| = 0.0000$

Text:

Distracting compared to Emotional

prob $> |Z| = 0.0000$

Distracting compared to Ordinary

prob $> |Z| = 0.0001$

Impression:

Distracting compared to Ordinary

prob $> |Z| = 0.0003$

The post hoc tests for the individual variables that had shown a significant effect on the Kruskal-Wallis test revealed differences between the emotional and distracting versions in five variables:

S1--well/poorly written

prob $> |Z| = 0.0000$

S2--easy/hard to understand

prob $> |Z| = 0.0000$

S3--emotional/objective

prob > $|Z| = 0.0057$

S5--easy/difficult to read

prob > $|Z| = 0.0000$

A3--recovering/dying

prob > $|Z| = 0.0047$

The ordinary and distracting versions differed significantly on two variables:

S1--well/poorly written

prob > $|Z| = 0.0001$

S2--easy/hard to understand

prob > $|Z| = 0.0023^5$

The only variable that showed a significant difference between the ordinary and emotional versions concerned Amy's health:

A1--healthy/sick

prob > $|Z| = 0.0067$

The greatest differences rest between the distracting version and the other two, especially in variables associated with text comprehension.

However, these statistics say nothing about the direction of the difference, merely that it is significant in degree. In fact the scores for the story-related variables on the emotional and ordinary versions of the story show a consistent pattern of low scores. The emotional version is even lower on the text-related variables than the ordinary version, although not significantly lower. The impression-related variables show a significant impact only in comparing the ordinary and distracting versions. This result is contrary to expectation since the emotional version would be expected to have an impact on readers' impressions of the story. However, except for S4 (happy/sad), these variables actually address the seriousness of the story more than any atmosphere created by the writer.⁶ It may be that our schoolbook training has taught us that texts with unusual marks of punctuation are to be taken less seriously.

A similar situation is found in the Amy variables showing significant results. They are precisely the ones I had hoped would show some effect. However, the scores indicate a somewhat more positive outlook

⁵ A third variable, S5 (easy/difficult to read) was very close to the .0083 level of significance at prob > $|Z| = 0.0086$.

⁶ In fact if the S3 (emotional/objective) variable is reversed, considering objective the better option, the sum of those variables is significant (Kruskal-Wallis $X^2 = 7.19$, $p > .0275$). The only two-way comparison yielding significant results is the emotional/ordinary, which is significant--prob > $|Z| = 0.0075$.

for Amy than an emotion-charged atmosphere might dictate. The rhetorical punctuation was intended to create an impression, to enhance apprehension; instead Amy's situation is considered less dire by readers of the emotional version. Two possible explanations occur to me. Either the lack of seriousness evident above influences readers to presume a more positive outcome, or the impact arouses pity for the character rather than fear for her.

In a practical sense, what do these results mean? They indicate that readers can discern the impact of *bad* punctuation. Young writers therefore should take note. Violation of convention and good sense can have a negative impact on readers. The results also argue for more toleration for innovative punctuation. Writers can choose to punctuate rhetorically with confidence that they will not lose comprehensibility. They may even gain some slight advantage in terms of engaging the emotions of their audience. However, they cannot necessarily be certain of what the impact may be.

This study is the first part of an ongoing investigation of punctuation. Several issues are still being addressed. One question overlooked in the design of this questionnaire is that of gender and its possible impact. Therefore an extension of the present study is underway. Preliminary results from the first 100 subjects suggest that indeed gender may show some effect especially in the impressionistic variables. The second stage of the investigation concerns the impact of punctuation in non-narrative texts. In view of the questions raised in this study about how seriously readers take texts with marks of punctuation other than periods and commas, separate consideration of non-narrative writing is crucial. The experimental text is under preparation and data collection will begin soon. With the kind of information gained here and in the follow-up study, writers and teachers of writing can address this frequently ignored part of the writing process with a greater understanding of the risks and advantages to be found in punctuation choices.

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Appendix

'EMOTIONAL' VERSION

When John and his sisters returned from the circus, they were bundled off to bed. By then, however, it was too late.... Little Amy had already suffered a chill. Soon she had a high fever and the asthma attack began immediately. Their mother called the old family doctor who agreed to come as soon as he could. The doctor pulled into the driveway where he was met by the anxious family. They quickly ushered him into the small bedroom upstairs where Amy lay breathing slowly and with a deep rasping sound. Her little face was bright red from the fever. Her eyes glazed, and hair stringy and sweaty, she looked very sick. All the children were afraid Amy might even die! While the doctor was there, Mr. Tinsdale took the children downstairs to the kitchen. He gave each one orange juice and a spoon of cod liver oil; he did not want anyone else in the family getting sick. Upstairs the doctor and Mrs. Tinsdale worked to bring down little Amy's fever. They put her in a cold bath and then they wrapped her in blankets. After five minutes they repeated the process again and again. Downstairs the children were frightened. When their father told them to go to bed and to sleep, they went without protest. John lay in his bed thinking about how wonderful the circus had been and how sour the day had turned when Amy took sick. Why couldn't it have been him instead of Amy? He was strong and healthy, never sick, but Amy! Amy was small, weak and asthmatic. As he tried to sleep he could hear Amy's choked coughing through the still night. At least it was some comfort to know that she was alive. Finally John drifted off into a fitful sleep. When he awoke the next morning, the house was still and quiet. For a moment John enjoyed the warm sun on his face. Then he remembered all that had happened the day before, and he was suddenly afraid--

'ORDINARY' VERSION

When John and his sisters returned from the circus, they were bundled off to bed. By then, however, it was too late. Little Amy had already suffered a chill. Soon she had a high fever, and the asthma attack began immediately. Their mother called the old family doctor, who agreed to come as soon as he could. The doctor pulled into the driveway, where he was met by the anxious family. They quickly ushered him into the small bedroom upstairs, where Amy lay breathing slowly and with a deep, rasping sound. Her little face was bright red from the fever; her eyes, glazed, and hair, stringy and sweaty. She looked very sick. All the children were afraid Amy might even die. While the doctor was there, Mr. Tinsdale took the children downstairs to the kitchen. He gave each one orange juice and a spoon of cod liver oil. He did not want anyone else in the family getting sick. Upstairs the doctor and Mrs. Tinsdale worked to bring down little Amy's fever. They put her in a cold bath, and then they wrapped her in blankets. After five minutes, they repeated the process again and again. Downstairs the children were frightened. When their father told them to go to bed and to sleep, they went without protest. John lay in his bed thinking about how wonderful the circus had been and how sour the day had turned when Amy took sick. Why couldn't it have been him, instead of Amy?

He was strong and healthy, never sick, but Amy, Amy was small, weak, and asthmatic. As he tried to sleep, he could hear Amy's choked coughing through the still night. At least it was some comfort to know that she was alive. Finally, John drifted off into a fitful sleep. When he awoke the next morning, the house was still and quiet. For a moment, John enjoyed the warm sun on his face. Then he remembered all that had happened the day before, and he was suddenly afraid.

'DISTRACTING' VERSION

When John and his sisters returned from the circus, they were bundled off to bed. By then, however, it was too late. Little Amy had already suffered a chill. Soon she had a high fever, and the asthma attack began, immediately. Their mother called the old, family doctor, who agreed to come as soon as he could. The doctor pulled into the driveway, where he was met by the anxious family. They quickly ushered him into the small bedroom, upstairs, where Amy lay breathing slowly... and with a deep rasping sound. Her little face was bright red from the fever. Her eyes, glazed, and hair, stringy and sweaty -- she looked very sick. All the children were afraid Amy might even die, while the doctor was there. Mr. Tinsdale took the children downstairs to the kitchen. He gave each one orange juice and a spoon of cod liver oil. He did not want anyone else in the family getting sick. Upstairs, the doctor and Mrs. Tinsdale worked to bring down little Amy's fever. They put her in a cold bath and then they wrapped her in blankets. After five minutes, they repeated the process again, and again. Downstairs the children were frightened when their father told them to go to bed and to sleep. They went without protest. John lay in his bed thinking about how wonderful the circus had been and how sour the day had turned when Amy took sick. Why couldn't it have been him instead of Amy? He was strong and healthy, never sick. But Amy -- Amy was small, weak and asthmatic. As he tried to sleep, he could hear Amy's choked coughing through the still night. At least, it was some comfort to know that she was alive. Finally John drifted off into a fitful sleep. When he awoke the next morning, the house was still, and quiet. For a moment, John enjoyed the warm sun on his face. Then he remembered all that had happened, the day before, and he was suddenly afraid.

Questionnaire

Circle the number which most accurately reflects your opinion.

The story itself							poorly written	
well written							7	8
1	2	3	4	5	6			
easy to understand							hard to understand	
1	2	3	4	5	6		7	8
emotional							objective	
1	2	3	4	5	6		7	8

happy							sad
1	2	3	4	5	6	7	8
easy to read							difficult to read
1	2	3	4	5	6	7	8
realistic							unrealistic
1	2	3	4	5	6	7	8
serious							silly
1	2	3	4	5	6	7	8

John

aware of reality							given to fantasy
1	2	3	4	5	6	7	8
handsome							ugly
1	2	3	4	5	6	7	8
sensitive							insensitive
1	2	3	4	5	6	7	8
strong							weak
1	2	3	4	5	6	7	8
serious							silly
1	2	3	4	5	6	7	8
happy							sad
1	2	3	4	5	6	7	8

Amy

healthy							sick
1	2	3	4	5	6	7	8
pretty							ugly
1	2	3	4	5	6	7	8
brave							afraid
1	2	3	4	5	6	7	8
emotionally strong							emotionally weak
1	2	3	4	5	6	7	8

John and Amy

are very close							are not very close
1	2	3	4	5	6	7	8
go to church							do not go to church
1	2	3	4	5	6	7	8
don't argue often							argue often
1	2	3	4	5	6	7	8
admire each other							don't admire each other
1	2	3	4	5	6	7	8

AN INVESTIGATION OF SIMPLIFICATION OF NON-NARRATIVE ESL TEXTS

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Previous investigation of simplification of narratives for language learners has demonstrated that simplification, starting with a story's title, has complex consequences for the resulting narrative (Laube, 1990). Simplification eliminates textual matter which originally stages various parts of the narrative in relation to each other and devices which define the author-reader relationship vis-a-vis the narrative. Also, because of syntactic and lexical simplification, all clauses are presented as foregrounded narrative clauses. Simplification also restricts the narrative structure to only those narrative units presenting the Complicating Action (term borrowed from Labov, 1972). These differences form the basis for arguing that simplicity as the result of text simplification presents a homogenized schema of English narrative which does not contribute to the learner's building of a narrative schema that can be accessed during other narrative reading. On the contrary, it encourages learners to read word-for-word or sentence-by-sentence, unable to acquire the schema necessary for interpretation, and excluded from the communicative act of reading.

This study extends previous analysis of simplification to non-narrative discourse in order to accomplish three goals: 1) to provide a descriptive analysis of the textual differences between parallel (original and simplified) texts; 2) to provide tentative comparisons between the simplification of narrative and non-narrative discourse; and 3) to sketch theoretical connections among simplicity, readability, and accessibility/learnability.

In order to delimit this study, it is important to define the discourse being investigated. The previous study investigated narratives, specifically fictional or literary narratives which have a *poetic* text function. The texts analyzed for the current study are non-literary, having primarily referential (i.e., informative) text functions. Excluded are texts which can be further identified as "news" articles, as they will be analyzed separately in a future study. The specific texts analyzed are parallel texts--original vs. simplified/modified--texts which appeared in *The New Yorker*, *New York Times Magazine*, *Psychology Today*, and *U.S. News and World Report*. The mere mention of these publications should activate specific culture-bound schemata: Those of us native to U.S. culture can generally recognize texts from each

of the publications by the characteristic style, format, topics, editorial conventions and layout, etc., depending on our experience with these publications. For example, features in *The New Yorker* can be upbeat and off center; in *Psychology Today* topics are presented for non-specialist readers.

Implicit to this analysis is the relation of a text to the reader and to the writer, the communicative aspects inherent to all discourse. As will be discussed, discourse processing (whether reading or writing) is affected by these relations, via both the textexternal (communicative situation) and the textinternal (linguistic/rhetorical) elements. This paper argues that by significantly altering these elements, simplification creates a different communicative act.

Textexternal Elements

1. Explicit references to socio-economic context.
2. Situationally bound, references to persons, places, times and events can be clearly identified. Dates quickly.
3. Writer adopts a recognized role in which s/he is socially responsible for what s/he says.
4. Reader is legally or socially obliged to act, think or behave in a prescribed way. Or it is advantageous for [reader] to do so.
5. Pragmatic functions: language is used primarily for [referential] purposes (to inform, persuade, criticize, opine) (von Ziegeler, 1979: 8).

The parallel texts for this study were analyzed using an adapted set of textinternal linguistic features derived from the works of Werlich (1976) and von Ziegeler (1979).

Graphological Level

- spelling
- punctuation
- capitalization
- typological layout
- length of lines
- paragraphing
- periodic length¹

Morphological Level

- word-classes and their distributions
- tense and aspect

Lexical Level

- vocabulary choice
- pronouns references
- lexical cohesion

Syntactic Level

- word order
- sentence types²
- sentence links
- syntactic rhetorical devices (parallelism, repetition)

Text Level

- introduction type
- cohesion
- text structure
- text units
- grounding
- topicalization
- conclusion type

Although most of the above features are self-explanatory, some require explanation. It is important to bear in mind that these are always applied from the view that the writer makes

choices with a particular intent to establish a specific stance or relationship with the reader and the subject of the text. An examination of the lexical level elements illustrates this point: von Ziegesar claims that the vocabulary chosen reveals as much about the attitude of the writer towards the topic as it does about the view s/he holds of the reader (shared presuppositions, reading ability); pronoun references signify the relationship of the writer to both the reader and the text--whether and how the writer directly addresses the intended reader (directly with *you* or impersonally with *one* or not at all), or how the writer refers to him/herself if at all; lexical cohesion refers to how the subject matter is semantically characterized.

General Impressions

The few textinternal generalizations about the original articles, outlined below demonstrate the textual richness available to readers.

Graphological

The print is generally small, in newspaper length columns, with 6-8 words per line (to facilitate quick scanning); three of the articles divide the information into sections, which are marked either with headings or some print alteration (boldface or capital letters) of the first few words of each section, a symbol (a tiny, open box), or white space; the articles contain multiple paragraphs (an average of 23.4); sentences per paragraph range from an average of 2 to 16.5; sentences average 22.85 words per sentence (considered at least fairly difficult); the writers variously use italics, boldface and capital letters; several prominently display excerpted lines throughout the pages; photographs and illustrations depict points being made in the text.

Morphological

All possible word classes are represented; the articles variously use different tense, aspect and mood markers.

Lexical

As would be expected, the vocabulary in the articles reflects the topic and "jargon" befitting the topic; some articles use pop talk and idioms; lexical cohesion is accomplished through collocation.

Syntactic

Varied sentence types; multiple syntactic structures--nominalized subjects, complex sentences containing noun, adjectival, and adverbial dependent clauses, conjoinings at clausal and phrasal levels, appositives and fragments.

Text

Some of the introductions along with the title serve to announce the topic, while others provide historical background or a dramatic lead; cohesion is achieved variously through reference substitution, ellipsis, and conjunction; text structures are generally multi-mode--presenting historical with

process or analysis or presenting background and description with dialogue or evaluation; as discussed above, the length of paragraphs and sections is quite variable. Grounding and topicalization are shifted across text units, achieved through subject and verb focus.

Generalizations about the parallel texts hint at the consequences of simplification.

Graphological

Punctuation seems limited to common sentence terminal marks, commas and the occasional semi-colon; capital letters are used only at the beginning of sentences and proper nouns; the lines are longer (averaging 10.86) and the pages have more white space (sometimes filled with vocabulary glosses, footnoted explanatory information, or pictures); the articles are significantly shorter, with only 5.2 ave. paragraphs (in anticipation of the mythical 5-paragraph essay so frequently taught in traditional writing classes) and, further, an average of 5.1 sentences per paragraph, averaging 14 words in length (considered fairly easy) since the length of the articles is shorter, some articles are enclosed in a box to separate them from surrounding prose.

Morphological

Word classes are more limited in distribution--rare are derived forms like nominalizations, gerunds, and participles; non-human subjects are frequently replaced by human subjects; few personal pronouns occur; modifiers (adjectives and adverbs) are reduced; verbs are often in simple tense forms; perfects are reduced to a simple tense form and passives are changed to actives.

Lexical

The most obvious differences are evident in the vocabulary choice. Words are usually restricted to only those which appear on word lists. The frequent vocabulary substitutions lead to lexical cohesion achieved through the repetition of words and phrases instead of the use of synonyms, pronouns, and collocations. Idioms are often eliminated; words not changed are glossed in the margins of the text.

Syntactic

Most striking is that syntax is consistently altered into a simple active SVO pattern; few subordinators are used--limited to relative and noun clauses, "because" and "if" adverbials. Original subordinators are often expanded into full independent clauses. The most frequent sentence link is the simple conjunction "and." As stated previously, paragraphs consist of an average of five sentences. Some articles synthesize new sentences by fusing portions of sentences from different places within a paragraph or even from different paragraphs.

Text

As is explained in detail below, two types of text modifications occur in simplification. Relatedly, the introductions and conclusions either closely mirror the

original or establish different contexts. Cohesion is achieved through rare pronoun substitutions, some demonstratives, and simple additive and sequential temporal markers. Grounding relies on topicalization through repetition of same subjects. Verb tenses rarely change across or within the paragraph(s). The texts are structured in ways to limit the modes being presented--historical information is usually deleted and dialogue is eliminated or reduced sometimes to reported speech. The common practice to excerpt portions of the original text refocuses the parallel text on only a portion of the topic; topicalization is achieved through repetition of same syntactic subjects. As a result of these text features, the simplified texts serve different communicative functions.

Detailed Analysis of Parallel Texts

Two types of modification can be identified when texts are simplified: one (I.B.) attempts to maintain the text closely despite the deletions and modifications; the other (II.B.) liberally synthesizes portions from different sentences and paragraphs in addition to other modifications. Both types are examined in the discussion below.

I.A.

The article "Childless--And Unfettered" appears in a special focus section of *U.S. News and World Report* devoted to family patterns in contemporary American life. The article examines one family pattern in which a married couple chooses not to have children. It invites the reader to step into one couple's life in a rather personal way as they discuss individually their reasons for choosing to be childless. It is set in 1976 by the publication date in Berkeley, CA, on a "quiet residential street" in the home of a thirty-ish professional couple who have been married for four years.

Graphological

This article uses typical newspaper paragraphing; it has numerous paragraphs usually only 2-3 sentences in length. The average sentence length is 14.25 (fairly easy, see Note 1). Four of the paragraphs are the result of punctuating the lead into a quote with a colon and then writing the quote as a separate paragraph. It displays two photos of the couple--one jogging together, the other sharing a meal. It is divided into 3 sections clearly marked with boldface headings: the first section contains 15 short paragraphs, the second 10, the third only 4. The lines contain an average of 10 words. The article spans one entire page and the bottom third of one column (two columns/page).

Morphological

The writer and quoted speakers use modals and present perfect, as well as simple present and past verbs. A variety of word classes are represented, derived nouns, participles, adjectives, adverbs, proper names, common names.

Lexical

The idiomatic language presumes (membership/familiarity with

the American culture, as evidenced by the use of lexical items like *stick it out*, *might school*, *jog*, *highly mobile* [generation], *youth cult*, [summer] *camp*, *day-care center*. Because the article contains transcribed speech of the couple, the article contains first and second person pronouns in reference to them as speakers and to a generalized "you" in describing their views and experiences.

Syntactic

The article contains many syntactic arrangements: appositives, relative clauses, noun clauses, concessives, contrasts and conjoinings. There are several if clauses, related to the frequent speculation done by the couple about consequences and alternatives to their choice to remain childless. There is some ellipsis, and various sentence conjunctions connect syntactic structures.

Text

The interview basis of this article is implicit; in only two places, the writer records the question presented to the couple. Yet, their "answers," their actual words, make up all or most of 14 of the article's 29 paragraphs. In 5 other paragraphs their words are paraphrased or cited in indirect discourse. The title establishes the topic, the couple is presented in the first three sentences as being a representative couple. The fourth sentence repeats the title's main word "childless" to underscore their connection to the topic and open their story. The article presents their story as one common to this culture. Even though it allows the reader to "hear" the couple discuss the reasons for being childless, it also offers additional information about their current lifestyle as a way of supporting the second part of the title, "unfettered."

I.B.

The parallel text is entitled "Childless--And Free." The substitution of free for unfettered, while it suggests a different condition, is probably guided by the textbook writer's adherence to a two thousand word vocabulary list, as stated in the preface to the text. When not possible, the editor includes the more difficult words with an explanation in the margin, taking care that only one such word occur no "more frequently than one every three or four lines." The principles for simplifying the syntax are less clear, but the preface to the collection states that such was done occasionally.

Graphological

Punctuation changes are rare: in one instance, the abbreviated U.S. is written in full; the use of the colon before quoted speech is replaced by the more "conventional" comma. The article consists of five paragraphs plus a contextualizing paragraph set apart in italics at the beginning of the article. Each paragraph is numbered but the sections have been eliminated. The paragraphs are longer, averaging 8 sentences each. The length of the lines is similar to the original, 11.3

words/line.

Morphological

Since this text retains most of the original text, there are no morphological differences.

Lexical

The bulk of the lexical differences result from substitutions for perceived "difficult" vocabulary. Thus *evolved* becomes *developed*, *ranks* > *number*, *bluntly* > *honestly*, *taking off* > *going*. One change leads to a wordy, cumbersome construction: *sacrifice for* > *go without things for the sake of*.

Syntactic

Only two changes are evident: quotes are not separated from their lead by a paragraph shift and syntax is normalized so that verbs always follow the subject. In one place a "furthermore" which served in the original as a transition to a paragraph becomes part of the woman's dialogue at the sentence level.

Text

The intent of the original is retained: to present the couple's story as representative of childless couples. The simplified article has two introductions. One is in italics and serves as a pre-reading introduction to the topic, which summarizes some of the points later made by the couple. The other is the actual first paragraph of simplified article and does not match the original's at all. It presents reasons couples may choose not to have children and raises some questions which the couple's story can be interpreted as answering rather than as inviting the reader to visit the couple's childless marriage. Several paragraphs that describe the quality of life the couple enjoys as well as some of their background is eliminated. The conclusion is unchanged.

II.A.

The second set of parallel texts to be analyzed represent the more "radical" modifications discussed previously. The original comes from *The New Yorker*, in the section entitled "Musical Events," subtitled "Desert Airs." Its purpose is to present the author's assessment of a week at the Santa Fe Opera, his description of "a brand new musical experience, having heard and seen opera as I have often dreamed it might be."

Graphological

The writer uses a variety of punctuation, including commas, semi-colons, questions marks, quotation marks, periods, dashes, and parentheses. These last two suggest the "conversational" discourse described in the text section. The title of the magazine section is written in artistic capital letters, with the title of the article italicized and only the first letter of each word capitalized. On the pages are three columns, with 6 words per line. The article consists of three sections, marked by capitalizing the first word or two of the paragraph. The first and last sections consist of three paragraphs, the

middle section has just one. The first page of the article is filled, but the remaining two pages contain only one column of text, the other two given over to advertising. On two pages, there is a small graphic. The sentences are 25.7 average words.

Morphological

Numerous word types--compound noun phrases, nominalizations, proper nouns (listing various performers, operas, opera characters, operatic composers, opera companies, place names, and the company's impresario). Verbs appear in active/passive, simple present and past and present perfect (more about these in the *Text* discussion).

Lexical

The vocabulary used clearly presumes an audience familiar with opera: *tenor*, *soprano*, *baritone*, *dressing room*, *pianissimo*, *score* and *principals*. The use of the proper names (names of composers and famous singers) suggests that the reviewer assumes a well traveled and discriminating audience--adjectives conjure exotic places (Bangkok, Lombardy, Japanese) in his description of the opera house. The writer-reader relationship is personal and familiar. The writer refers to himself as "I" throughout. The second section addresses the reader: "Let me give you an idea of how it feels to attend the Santa Fe Opera." The entire paragraph/section describes the opera house experience consistently in terms of what *you*, the readers, experience.

Syntactic

Each paragraph consists of an average of 16.5 sentences. It contains appositives, compound structures at the phrase and clause level, subordinate clauses (noun, adjective and adverbial). Sentence links include conjoinings, subordinators, and some ellipsis. Some indirect discourse and the rare quoted phrase uttered by the impresario hint at the interview that formed the basis of the article.

Text

Paragraphs in this article are long, averaging 16.5 sentences each. This article accomplishes multiple purposes: 1) the writer's purpose is to share his reasons for describing his experience as a "happy operatic situation;" 2) there is evidence of an interview with the impresario, Mr. Cosby; 3) the writer relives the experience; 4) the writer intends a review of the performances. These purposes set different communicative situations for the three sections of the article; these are mirrored by the verbs: In section 1, Mr. Cosby is referred to by name eight times in the first section (but only twice in the second, and once in the third). The frequency in the first section is no accident, as this section discusses the history, financing and general workings of the Opera company learned from the interview with Cosby. The verbs are simple present and past, and present perfect depending on the time line of events being presented. The second section, in a

purely descriptive you-are-there mode, establishes a highly personal relationship between reader, writer and subject. All verbs are either simple present or present progressive. The third section presents a chronology of the operas he attended, praising (or occasionally criticizing) the artists' performances, scenes, scenery, or orchestration. All verbs are simple past.

II.B.

The parallel text is entitled the "Santa Fe Opera," displayed on the page opposite the first page of actual text. Its title stages the focus that follows and is less figurative and poetic than the original's "Desert Airs." The authors have adapted the article to adhere to some non-specific "chief grammatical structures of English" and a 1500 high-utility vocabulary.

Graphological

Punctuation is less varied: commas link modifying phrases and conjoined clauses; periods marks sentence boundaries. The final paragraph contains only one parentheses pair and one dash. Capital letters are used conventionally for the few place names and at the beginning of sentences. Text lines average 11 words. The four paragraphs span three pages, consisting of an average of 4.5 sentences with an average of 17.25 words each. There are two photos (one of the audience seating section and another of a scene in a performance). It is not indicated whether the photos are actually of the Santa Fe Opera. These photos replace original textual matter. A small cartoon-like drawing of two-inch square showing a singer and some audience, illustrates the stage for the ESL reader.

Morphological

Except for "performances," there are no nominalizations. The only proper nouns are these few repeated place names: Santa Fe, New Mexico, Metropolitan Opera, New York, Santa Fe Opera. There is only one passive and all verbs are written in simple present in the main clauses; two subordinate clauses contain modals.

Lexical

All idioms are usually eliminated, although a few are modified: house is sold out for practically every performance > all seats in the theater are sold for every show. Replacing original vocabulary with "easier" words often requires many words to convey the same essence; for example, *open-air* becomes *open with a roof over the stage and part of the audience* (this line is illustrated by the first photo and the cartoon). The writer and reader remain out of this text; thus no I-you references occur. The focus is solely on the opera house.

Syntactic

All syntax is normalized to SVO. A few clauses are conjoined with "and." Independent clauses are always written first, with subordinators embedded in the predicate after the main verb.

Text

This text is a description of the Opera House with less than 25% of the original text presented, taken only from the first two sections of the original. Many of the original facts are distilled into summary sentences. The review is absent, as is the vicarious experience of attending an evening performance. The "interview" with Mr. Cosby and facts about the Opera's history are also eliminated. The first paragraph describes the theater and the summer season; the second explains why the Opera House is notable, listing three reasons; the third describes the audience constituency; the fourth recasts information from the original text's vicarious second section as the only "problem" with the opera--the cold summer evening weather. In all, the original article is reduced to a mono-purpose, mono-focus expository piece.

Conclusions

These findings reflect similar consequences of simplification as reported in my previous narrative text analysis: At the text level, these analyses show how simplified texts alter the distinctiveness of the original writer's style, purpose and relationship to the text and reader. All texts, within and across, simplified textbooks have the same "sound" and "look" because of the commonly used word frequency lists, elusive "core" grammatical structures of English, and layout for preparing the materials. It is a common report from teachers that students complain that the texts are "boring."

The analyses also dramatically demonstrate how the discourse processing is altered. Readers of the original texts are engaged in complex meaning negotiations as the relationship with the text and the author are constantly manipulated, altered throughout the texts. Readers of simplified texts do not learn how to negotiate through these sometimes subtle shifts. Because the textinternal structures have been altered to obscure the textexternal situation, readers lose practice in learning how to apply inferential rules to derive meaning (Frederiksen, 1986). Without the full range of textinternal signals, learners fail to learn how to use them when presented in unsimplified texts so that they can comprehend the text. In sum, the strategies used to simplify the text become the strategies readers use to process the text (adapted from Witte and Cherry, 1986).

Notes

1. According to R. Flesch's readability formula, 29+ words per sentence = very difficult, 25 = difficult, 21 = fairly difficult, 17 = standard, 14 = fairly easy, 11 = easy, 8 = very easy.
2. For this, I have used a syntactic typology devised by Kellogg Hunt which identifies 9 main types of syntactic patterns. Readers are referred to his work for full details.

Texts Analyzed

Simplified texts follow original, marked with *.

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VII

MISCELLANEOUS STUDIES

TO LEARN OUR MOTHER TONGUE

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The child knows the language
when he knows its
constructional mechanism
and how to use it...

Gustave Guillaume (1984:41)

INTRODUCTION

It is, I believe, generally accepted by the proponents of Generative Grammar that we come into this world endowed with a Universal Grammar. In itself the claim that a grammar constitutes part of our hereditary make-up is, to say the least, rather surprising. But if one considers what this view entails — the fact that the linguist must somehow account for how our species acquired this part of its genetic baggage — the reaction may well be one of questioning, if not of outright rejection of the hypothesis. Indeed, when I told a friend of mine, a physicist and a bit of a sceptic, about this idea of an innate grammar and mentioned that I had trouble accepting it, he remarked: "I quite understand your hesitation. You prefer grammar without miracles." And yet it has often been shown in the history of science that the strangeness of a hypothesis is not sufficient grounds for condemning it.

A more rational manner for judging a hypothesis is to examine the postulate(s) on which it is based. One is led to expect that there must be valid grounds for proposing this hypothesis by the fact that it is accepted by so many linguists. Unfortunately, an examination of the postulates does not confirm this expectation.

In this paper I shall first outline my understanding of the innate grammar hypothesis and the difficulties it leads to. The argumentation and facts of observation on which it is based will then be examined. I shall then show that this data base is incomplete and that, as a consequence, the hypothesis is inadequately founded. An alternative hypothesis for acquiring the mother tongue will then be presented, one based on what seems to me a more complete view of the data.

THE INNATE GRAMMAR HYPOTHESIS

This hypothesis can perhaps best be summed up by the following passage:

... In order to explain how children manage to learn a particular language rather rapidly from rather fragmentary evidence, it is of great importance to extract from grammars of particular languages a theory of *universal grammar*, that aspect of linguistic competence which is due to the human genetic endowment and which therefore need not be learned. It is in principle desirable to maximize the contribution of universal

grammar, since one can then claim that the choices a language learner has to make are relatively limited. On the other hand, of course, the choices left to the language learner must be sufficient to differentiate all known human languages. (Jackendoff 1983:8)

In a footnote, it is claimed that this passage is "a distillation of many discussions on this topic by Chomsky, especially Chomsky (1965)".

There are a number of points of interest here. Worth noting in passing is the notion that a theory of universal grammar is to be "extracted" from grammars of particular languages. This suggests a mode of theorizing based uniquely on induction, on filtering out what is common to all particular languages, and makes one wonder if other modes, such as depicted in Holton 1973, are excluded. If so, the only relation between the theory (universal grammar) and individual grammars is that of general to particular and the explaining potential of the theory is limited to this relationship.

Of more immediate interest to us here, however, is the reason for proposing that a theory of universal grammar should be extracted: to explain how infants acquire a language "rather rapidly from rather fragmentary evidence". Certainly, anyone who has given a moment's thought to the matter is struck by the rapidity with which an infant learns its mother tongue and, like any other object of wonder, this phenomenon is a proper concern for science. The procedure suggested here — to assume that any element common to all languages is genetically provided — will certainly make the task of the linguist easier, at least in the short term, because he will not have to account for the infant acquiring such elements. From this point of view it follows that "to maximize the contribution of universal grammar" is of considerable advantage because the problem of the individual acquiring language is proportionately minimized. However, from the point of view of linguistics as a science this gives one pause because it appears to reverse the order of scientific explanation. That is, morphological and syntactic usage in particular languages constitutes the empirical facts of linguistics and the rules of universal grammar the hypotheses or axioms, and as Einstein's well known dictum teaches us:

The grand aim of all science is to cover the greatest number of empirical facts by logical deduction from the smallest number of hypotheses or axioms. (Barnett 1959:112-113)

"Maximizing the contribution of universal grammar" would, if I have understood correctly, amount to increasing the "number of hypotheses or axioms". Granted Einstein's authority in the matter, one cannot but question the validity of the universal grammar hypothesis as a basis for language acquisition.

Another consideration, hinted at above, deserves mention here. The diachronic change discernable in human language is effected in large part when the younger generation reconstructs its mother tongue. With a maximized universal grammar which is genetically determined, one wonders just how innovation can take place. How, for example, can the system of the article, which did not exist in Latin, suddenly appear in Old French? To argue that it already existed in the universal grammar and merely had to be activated would simply

displace the question: what activated would, in fact, put us in the curious situation where, in order to innovate something, we must already know it. Furthermore, such an argument would be confronted with the obvious question: what activated the article at that particular moment? Indeed, this argument confronts an even more serious problem: how did the article, or the passive, or the plural or any other such abstract object of thought, along with the rules governing its use, oget instituted in the universal grammar in the first place? That is, this hypothesis merely displaces the problem of acquisition from the level of the individual learner to that of the human race.¹

Such considerations suggest that the position of those who accept the doctrine of innate universal grammar as outlined above is hardly tenable. And yet one cannot simply reject the very notion of a general theory of language. To do so would leave us with a very large number of particular grammars but with no possibility of discerning a principle or principles underlying them. Linguistics, like any other science, is concerned with finding the general hypotheses or axioms that can explain what is observed in its object. It should lead us to a deeper knowledge not just of human languages but also of human language.

To find a more valid basis for a general theory, it will help if we can see what has gone wrong in this doctrine of universal grammar. In the above passage, it is asserted that infants reconstruct their mother tongue "from rather fragmentary evidence", a notion which calls for clarification. According to Chomsky (1965), the nature of what infants hear and build on

consists of a finite amount of information about sentences, which, furthermore, must be rather restricted in scope, considering the time limitations that are in effect, and *fairly degenerate in quality*. (p. 31; italics added)

Since "much of actual speech observed consists of *fragments and deviant expressions* of a variety of sorts", it is, as a basis for constructing "a generative grammar that defines well-formedness and assigns interpretations to sentences... *deficient in various respects*" (Ibid., p. 201; italics added). It follows that since an infant, according to Chomsky, does develop

an internal representation of a system of rules that determine how sentences are to be formed, used, and understood.... he must possess, first, a linguistic theory.... [It is] this innate linguistic theory that provides the basis for language learning. (p. 25)

In itself, the argumentation here seems to be quite irreproachable and postulating a genetically endowed universal grammar follows as a necessity. And yet, as we have seen, this hypothesis leads to serious difficulties. It remains to examine the premises on which the argumentation is based to see if this will put us on the track of what has gone wrong.

The first assumption is that the "primary linguistic data" consists of "information about sentences". That it to say, infants reconstruct the grammar of their language on the basis of what they observe concerning sentences. At first sight, this appears to be quite acceptable if only because we always speak in sentences or sentence fragments, so by definition this is all the infant hears. Furthermore, because the sentence is such a widespread phenomenon every speaker must

somehow be able both to produce sentences and recognize them. Plausible though this assumption may appear, however, one wonders if it is not too restrictive, if, that is, the "evidence" can be limited to what concerns sentences. After all, in everything the infant hears there is another language universal, namely the word, and there appears to be no reason for excluding his observation of words as a source of primary data. In fact, there are several reasons that suggest the infant is concerned with learning how to produce well formed words at least as much as he is with learning how to produce well formed sentences.

One reason for thinking the word is no less important than the sentence is drawn from the observations cited above. It has to do with what is available to the infant-observer. The "data" concerning sentences is "deficient in various respects", "degenerate", "fragmentary" precisely to the extent that discourse is not made up of well formed sentences.² On the other hand, every stretch of discourse, whatever it be composed of — well formed sentences, phrases, interjections, etc. — is always made up of words. That is to say, words are necessarily omnipresent in discourse, even in those fragments that do not constitute sentences. Is it therefore not more plausible to assume that "primary linguistic data" consists of "information about" both words and sentences?

Another reason, following from the first, concerns the constructive processes of language. Since both sentence fragments and sentences are made up of words, it would seem not only plausible but necessary to learn how to construct words as a prerequisite to producing sentence fragments and sentences. This proposal runs counter to the widespread prejudice that because words come to mind ready-made, they must somehow be stored in that state and so we do not have to construct them. However it does not require a vast linguistic culture to realize that the word is not constructed in the same way in all languages, that, for example, the words of Eskimo have a structure different from those of an Indo-European language like English (see Lowe 1985, Introduction). It follows that the word structure of a given language must be learned if the speaker is to construct the words he needs in order to produce sentences. As a consequence, it seems that the infant's primary concern should be to learn the processes involved in word construction since this is a necessary prerequisite for producing sentences.

A third reason for the importance and even primacy of words in the acquisition of the mother tongue follows from the second and opens an alternative avenue for linguistic enquiry. The production of a sentence, we have seen, is often interrupted, suspended, abandoned at the will and whim of the speaker. Not so that of the word. In a language like English, cases of word construction being interrupted, suspended, abandoned are rare indeed simply because the processes of word construction escape our voluntary control. Words are almost always well formed, and in the rare cases where they are not, the speaker normally reconstructs the word (e.g. "That was very fun, uh, funny."³). This is of considerable consequence for linguistics: whereas the sentence gives rise to data which is "fragmentary", "deficient", "degenerate", the word gives rise to data which is whole, efficient, regenerative. That is, if we postulate that the infant sets about learning

how to construct the words of the language he hears around him, there is no need for an innate grammar to account for his ability to do so.

THE LEXIGENESIS HYPOTHESIS

Considerations such as these certainly throw a very different light on the question of language acquisition but they may appear, at first sight, to complicate the issue. If indeed the infant is obliged to learn the processes involved in constructing words, LEXIGENESIS, as well as those involved in producing sentences, it may well seem that he has an even more difficult task ahead of him and will require an even greater genetic baggage to accomplish it — especially so since he can never observe a word being constructed because the processes involved escape conscious control. All the infant can do is observe their results, words in context, and work back from there. Fortunately there is always one aspect of a word in context which points to the way the word has been constructed: its function. A word is like any other instrument humans have invented: the use it is put to is necessarily a consequence of its make-up, the way it is put together. Hence the learning process consists of working back from the observed uses of a word (particularly how it relates to other words) to the means of putting it together, the constructive processes involved in lexigenesis, and ultimately to the mechanism that makes it possible for these processes to be activated whenever the need arises. More concretely, a word like "ultimately" or "mechanism" or "it" or "for" is each called to mind to function in the sentence being constructed, but its range of function is limited by the significant elements comprised within its make-up.

The infant must thus work back from the function of words to their nature. As a consequence, learning English as a mother tongue involves acquiring, instituting in the preconscious, the constructive mechanism of, say, prepositions. Just how this is brought about remains a mystery. Guillaume (1984:41) comments on it as follows:

... childish mistakes reveal the efforts of the child to rediscover the constructive processes of tongue from what he hears: his task is one of intuition. The child knows the language when he knows its constructional mechanism and how to use it, and when, in order to use it, he has realized that it is connected with an aphysical mental mechanism, that is, tongue itself. The signs are only needed to exteriorize its interiority.

The situation of the child described here reminds one of a well known passage from Einstein and Infeld (1966:31) depicting the scientist attempting to theorize the reality he is confronted with:

Physical concepts are free creations of the human mind, and are not, however it may seem, uniquely determined by the external world. In our endeavor to understand reality we are somewhat like a man trying to understand the mechanism of a closed watch. He sees the face and the moving hands, even hears its ticking, but he has no way of opening the case. If he is ingenious he may form some picture of a mechanism which could be responsible for all the things he observes but he may never be quite sure his picture is the only one which could explain his observations.

The parallel between these two passages suggests that learning one's mother tongue amounts to "theorizing" usage in the sense of instituting

in the preconscious the mental mechanisms required to produce what will function the way it is observed to do. Also intriguing here is the hint that both the infant learning his mother tongue and the scientist creating a theory appear to use the same sort of mental process: intuition. Although what intuition really is still remains a mystery,⁴ it is reassuring that there is no need to postulate a specific capacity for language acquisition. In fact it may well be that nothing outside of our ordinary mental activities are involved here if, as Einstein (1954:290) maintains, "the whole of science is nothing more than a refinement of everyday thinking".

The important point here, however, is the relationship between the postulated constructional mechanism and observed uses. This relationship can be summarized as follows: what is built into a word determines how it can relate to other words. That is, the lexical and grammatical meanings that make up the content of the word condition its usage. In the learning process, the child works back from the observable consequence to the condition whereas in the speaking process, which presupposes that the system of the word has been learned, the speaker works forward from the condition to the consequence, from the constructional mechanism of the word to its use in the sentence. From the grammatical point of view, then, morphology (in the sense of the grammatical content of a word) conditions syntax. Thus it turns out after all that the child is not confronted with a double task of learning since, once he has acquired the system of the word, the system of the sentence follows as a consequence.

So far we have seen that the child, far from being restricted to "observing" sentences, which, as well formed units, are intermittently present in discourse, is constantly confronted with words because they are omnipresent in discourse. Moreover the "data" derived from observing words, which are seldom if ever ill formed, is more reliable than that derived from observing sentences. Furthermore, in learning the system of the word, the mental mechanism for producing the words of his language, the child acquires the necessary linguistic condition for producing sentences. In short, it seems apparent that it would be both more accessible and more economical to acquire one's mother tongue by learning the system of the word.

SENTENCE-BASED THEORY vs. WORD-BASED THEORY

Since these conclusions are at odds with much theoretical work being done in linguistics today, it is important to discern the source of the difference. Contemporary theories, and Generative Grammar is still perhaps the best known of them, are almost all theories of syntax and as such are concerned mainly with the sentence and its constituents but tend to neglect the word and its constituents. That is, they attempt to analyze the syntactic relations between words without first attempting to analyze the words between which these relations are established. This amounts to neglecting an important part of language, how words are constructed, so important, in fact, that without it one cannot explain how sentences are constructed. That is, the conclusions reached above have as a corollary that a theory of the word is a necessary prerequisite for a theory of the sentence. It seems then that theories of syntax have

little chance of success unless they bring into consideration the very condition required to attain their goal, namely an analysis of the word.

Can we push the enquiry one step further and see why many approaches to language have omitted such a crucial matter? Perhaps the obvious reason is that in English the processes of word construction are not, in most cases, directly manifested through the physical form of the word or through its place in the sentence. Often, the only evidence of the constructional mechanism is the different senses the word can express in discourse. (The invariable quantifier *any* is a good example of this. See Hirtle 1988.) But in order to work with evidence of this type one would need a method for analyzing meaning and such a method is by no means easy to come by. This, then, is the crucial point: because any serious attempt at analyzing words necessarily involves analyzing the meanings they express, few theoreticians have ever confronted the issue squarely. And yet we know that avoiding some aspect of reality, no matter how difficult it is to accomodate, does not make it any less real. This, in my opinion, is the Achilles' heel of such theories of syntax: the failure to analyze words on the basis of the formal meanings they express.

To my knowledge Guillaume is the only theoretician to propose a method for analyzing the grammatical meaning of words, and it is no coincidence that his theory, the Psychomechanics of Language, is the only one based on a theory of the word as such. It is this which permits him to postulate that the only genetic endowment required for an infant to learn its mother tongue is that presupposed by any other human ability, namely the capacity for human thought (cf. Guillaume 1984:).⁵

CONCLUSION

Any theory purports to be a conceptual framework — an assumption about the nature of human language — which will permit a greater and greater understanding of how language is constituted and how it works. Only then can it explain its object more and more adequately. But understanding is based on observation, which must tend to be as extensive and as detailed as possible. Any approach which, wittingly or unwittingly, does not attempt to extend observation to the whole of language will result in a conceptual framework which is not commensurate with its object.⁶ Failing to take into account the word, failing to make it a primary concern in analysis, inevitably leads to an inadequate view of language and even to an inventing of universals to take its place.

NOTES

¹ To offer a solution to this problem, one tenant of the innate universal grammar hypothesis has even proposed, in all seriousness apparently, that each of the rules of universal grammar is acquired through genetic mutation.

² No attempt will be made here to evaluate the claims of those who call into question this characterization of spoken discourse. My concern is rather to focus on the status of words in discourse.

³ Even here the word *fun* in itself is well constructed, but at the moment of establishing its syntactic relations with other words is found to have been provided with a grammatical form which is inappropriate.

⁴ See Guillaume (1984:20) for comments on the relation between intuition and language structure.

⁵ Although the point cannot be developed here due to limitations of space, one example of how the foundational mechanism of human thought is reflected in language can be seen in Hirtle 1988.

⁶ For a development of this, see Hirtle 1985.

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NAMING PRACTICES IN CHINA: A MOMENT OF CHANGE

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Origin of study

With detectives' delight, George L. Trager and Henry Lee Smith would mention to their students early clues of a possible shift which their sensitive ears would catch in the language they heard around them. Certainly, language use is, like Thoreau's time, the stream in which we go a-fishing and, as in fact, every linguistic moment is a moment of change, our title is unnecessary.

But sometimes a listener is arrested by a detail--perhaps a word, a phrase, a sound--and wonders if there lies a clue, a thread to follow to comprehending a linguistic and maybe a societal shift. In 1989 in the Middle Kingdom, we noticed small intended and unintended word shifts and began this pilot study.

In the years leading to June 1989, China experienced the accumulative effects of a decade of accelerating new commercial, "open door" practices. Inflation was rampant, and as long-standing roles and relationships were being altered, some social sectors were benefiting, others were not. Daily use of language was also altering. Then, in Beijing, a sudden change became apparent. There was the Tiananmen incident. Subsequently, the Chinese media showed reactions in naming. Whereas, perhaps unintentionally, old pre-revolutionary words and phrases had been slipped back into use, now, intentional changes were evident. For example, Chinese viewers of television noted praise of workers in words not heard for over a decade. Also, later heard was a prominent term of address, "**comrade**," that had fallen into disuse. We decided then to trace directions of some terms. But first we needed to get some grasp on the present moment.

The study of naming and addressing norms, as one feature of social communication, has been much discussed in linguistic studies as an access to examining the relationship between language use and society. A considerable amount has been written on this topic. Results have led to evidences of addressing styles that reflected societies undergoing changes. Modern China provides a special opportunity for such a study.

Some background

To a semi-feudal and highly hierarchical world, the 1949 revolution brought about a new society. The intent of the revolution was to abolish the old social hierarchy, to make everyone socially equal. To help enforce this idea, the Communist Party called for the abrogation of titles for owners and employers, such as "laoban," proprietor, and honorific titles, such as "xiansheng," mister and "xiaojie," miss. At the same time the party promoted the use of "tongzhi," comrade to replace those old titles. The latter became a prevailing term of address to imply no social and economic differences. Even though other terms of address would not disappear entirely, "tongzhi" in the 1950's and early 1960's became the most common term of address. There was familiarity between speakers and no clear distinctions of power and solidarity. Nevertheless, this effort was to meet a strong challenge in the Cultural Revolution beginning in 1966. During this time many former cadres or officials lost their positions and were no longer regarded as "tongzhi," but rather as enemies.

The working class was deemed the leading class. As a result, "shifu," meaning skilled craftsman or master worker formally used only among workers, was to replace "tongzhi," as an honorable title for a master worker and became preferred in the same social situations where "tongzhi" had been used. Anyone could be addressed as "shifu" regardless of occupation. This term was again to lose ground, when, after the end of the Cultural Revolution, the Chinese government started to alter its economic development. The practice of distributing authoritative power to different levels of administration brought back a sense of social hierarchy. Also, people were allowed to accumulate wealth. The use of administrative and occupational titles, "laoban," proprietor was used to refer to individual business owners or even to state-owned factory directors. Such old honorific titles as "xiansheng," mister and "xiaojie," miss made their appearance again.

What are some present naming and addressing practices? This pilot study was initiated to provide some insight into this issue and to explore early evidence of micro changes which might carry clues to further socio-political development in one clearly defined academic community.

Location and population

Our observations were made in a teachers' college community of some 5,000 people in the city of Xuzhou, Jiangsu Province. With a history of more than 2,000 years, Xuzhou is an important city of industry and commerce. However, because it is somewhat distant from other major big cities and has few sightseeing attractions, it is rarely visited by

Westerners. Consequently, it has far less Western influence than other big cities. The population was selected from four groups: Students, Teachers, Staff, Administrators in the College. Ten relationships of these groups were identified; student to student, student to teacher, student to staff member, student to administrator, teacher to teacher, teacher to staff member, teacher to administrator, staff member to staff member, staff member to administrator, and administrator to administrator.

Information gathering methods

Initially we carried out informal interviews with members of the four groups and discussed the possible terms of address that might be used in their daily communication, as well as factors governing their choice of address. Three sets of questions were developed: one for students, another for administrators, and another for teachers and staff. A master list of twelve possible terms generated from this initial stage was prepared.

For the next step, ten percent of the individuals in each group was chosen on a randomly selected basis. The individuals were asked to read the questions and then answer them by checking the terms of address which they believed appropriate in various inter-personal relationships. More than one choice for a given question (or none) could be made.

We then made observations in a variety of situations; for example, in corridors during breaks, at the check-out desk of the library. There we noted how people talked to each other in daily communication. We did this to see if there were contradictions in the evidence in the interview questionnaires. The results showed that in some situations people had clearly misjudged their choices either intentionally or otherwise. For example, about half of the students stated, according to the questionnaire, that they would call a professor "jiaoshou," while in real situations we rarely heard them use this term. Instead, they used the more common and less high-ranking term of "laoshi," teacher. Also, the actual use of "tongzhi," comrade, was much less frequent than people reported was the case in the questionnaire.

Discussion of data

The wide use of the term, "laoshi" teacher, in speaking to staff members, administrators, etc. shows a tendency towards solidarity. However, the fact that administrative titles are more widely used, especially administrative titles, in speaking to a high-ranking administrator, reveals that there is a reappearance of the sense of hierarchy and social inequality.

The data shows an infrequent use of "tongzhi" and "shifu," and the appearance of the use of "xiansheng" and "xiaojie." Since the adoption of economic reforms, "tongzhi," and "shifu," (probably regarded as carrying some sense of being less educated) have been losing ground. People have begun to prefer address terms which carry no political sense, for example, "xiansheng" and "xiaojie," which were first reintroduced in communicating with foreign visitors.

I. Concerning Student--Student

The terms of address most commonly used among students are family name (FN) + given name; given name (GN); nickname (NN). The most common addressing practice between students is the somewhat neutral F + GN which can be used between intimates or non-intimates. GN and NN are used chiefly between intimates as an indication of familiarity. Whereas only three percent chose NN and sixteen percent state that they choose GN to address their classmates, about thirty-one percent chose NN, and twenty-eight percent GN to address their roommates.

Students from the same home town have a special relationship. About twenty percent of the informants state they preferred GN to F + GN. "Laoxiang," fellow-townsmen, is another address term used in this situation.

The traditional Chinese forms of "lao," old, and "xiao," little in conjunction with family name as polite terms of address also exist among students, although they are used infrequently. (Insert example) Only about four percent of the informants chose these two forms. "Tongxue," fellow student, is a term used only in speaking to a student whose name the speaker does not know. It means fellow student. When used by a person other than a student, it means student.

The honorific terms "xiansheng," mister and "xiaojie," miss, generally regarded as upper-class usage, are apparently coming onto the campus. Though only one percent of the student informants preferred the forms.

II. Student--Teacher

The addressing style between students and teachers is indicative of social inequality. A low-level grade teacher uses F + GN in speaking to his students with no clear distinction of familiarity, whereas a student will always use "laoshi," teacher to address his or her teacher. To a full professor, "jiaoshou," professor, respondents say, should be used. However, "laoshi" is slightly more common (51%) than "jiaoshou" (45%). The use of "jiaoshou" is

regarded as too formal. If a familiar relationship is established, a student will use "laoshi" instead of "jiaoshou."

III. Student--Staff

Again the address style is non-reciprocal. The preferred term for a non-teaching staff member to address a student is F + GN with no clear distinctions of familiarity. "Xiao" + FN is acceptable although less frequently, and "tongxue," student can be used when the staff member does not know the student's name.

When addressing staff members, some fifty percent of the students preferred to use "laoshi," teacher, in spite of the fact that they are not teachers, whereas the others chose either "tongzhi," comrade or "shifu," master worker. Thirty percent of students thought they would use "tongzhi" to address a librarian, and twenty percent of them "shifu" to address a typist or laboratory technician. While half use "laoshi," some of them (30%) use "tongzhi," and some (20%) address staff members in spite of the fact that they are not teachers (for example like typists and laboratory technicians) with "shifu," which carries less status.

Only one percent of the students chose the forms of "xiansheng" and "xiaojie" to address staff members. This interesting use of these honorific terms, makes its appearance in this context, too.

IV. Student--Administrator

For students and administrators, the addressing practices are, as expected, non-reciprocal. Ninety-three percent of the informants from the administrator group chose the neutral term of address F + GN in speaking to a student. "Tongxue" is also used by an administrator to address a student whose name he does not know.

Two general kinds of administrators exist: directors, department chairs and communist party representatives called "party secretaries;" office workers and secretaries. The terms of address that a student chooses vary according to the administrator. Further divisions can be made by grouping them into full-time administrators, or teachers who hold concurrent administrative posts (usually a department chair).

To a full-time administrator, eighty-five percent of the informants preferred the use of administrative title "shuji," party secretary and "zhuren," department chair. Only ten percent of them chose "laoshi," a term to show familiarity. To an office secretary, the use of "laoshi" is preferable; fifty-nine percent of informants chose the

former term, but only thirty-one percent preferred "mishu," secretary. Perhaps this means that the students regard office secretaries as having less power than "shuji" or "zhureng." A teacher with a concurrent post of department chair will be considered more a teacher than an administrator and addressed as "laoshi" (67%), but for the person who does not teach, students prefer to use "zhureng" (67%).

"Tongzhi" might be heard in this context, but only about three percent of the informants said they would use it.

V. Teacher--Teacher

The most common form of address between teachers is "laoshi," teacher. F + GN is also common between teachers, but it is usually restricted to teachers of similar age. Unlike the situation between students, use of mutual F + GN between teachers is not neutral, and is most commonly practiced between teachers who are familiar with each other. Some seventy-nine percent chose "laoshi" for speaking to an unfamiliar teacher. GN can also be used between intimates of similar age although less commonly than F + GN. "xiao" + FN and "lao" + FN also exist between intimates of similar age, but only four and ten percent of the informants chose these two forms.

Non-reciprocal usage also exists, especially between junior and senior teachers. The terms used here refer only to age and experience, rather than rank. While it is usual for a senior teacher to use "xiao" + FN (47%), F + GN (34%) or GN (21%) to a junior teacher to initiate an intimate relationship, the junior teacher will usually use "laoshi" to the senior teacher, regardless of familiarity (94%). When it is possible that mutual exchange of "lao" + FN and "xiao" + FN exists between the intimates of similar age, and non-reciprocal use of "xiao" + FN is used from a senior teacher to a junior one, a junior teacher will not venture to use the polite form of "lao" + FN to a senior teacher (2%), even though the two speakers are quite familiar.

Some junior teachers are former students whose graduation transformed them into colleagues. However, they will still find it difficult to address their former teachers or professors by using "lao" + FN, "xiao" + FN, or FGN.

Among this group the use of "laoshi" is common, an indication of politeness, respect and unfamiliarity, but "jiaoshou," professor, is formal. About eighty-seven percent indicated they would use "laoshi" in speaking to a professor. It is likely that "jiaoshou" might be used in the first few meetings, and then be switched to "laoshi."

Generally speaking, there are no clearly stratified rank distinctions, and teachers tend to treat each other as socially equal. As a result, the factors of age, generation, and familiarity are salient between teachers in selecting appropriate address terms.

VI. Teachers--Staff

The addressing practices between teachers and staff are quite similar to those used between teachers. Reciprocal usage of F + GN is the most frequent choice between intimates of similar age, with "laoshi" the second choice, and GN, "xiao" + FN and "lao" + FN the third. Although mutual exchange of "laoshi" in this context ranks as the second choice between intimates, it is the prevailing practice between non-intimates.

A senior staff member will probably use the form of "xiao" + FN in speaking to an intimate junior member, or as a second or third choice, use F + GN or GN. As between teachers, while the senior member has several choices, the junior member will, in most cases (85%), use "laoshi" as his or her address term to the senior member. "Laoshi" is still more preferable (67%) than "jiaoshou" (28%) for a staff member when speaking to a professor.

The forms used between teachers and staff are similar to those between teachers. The most important factors that govern the choice of address forms are again age and familiarity. The tendency to use "xiaojie," miss, appeared also when two percent of the informants decided to use this form to address junior female staff members. Occasionally "shifu" may be used by teachers and staff in speaking to typists and laboratory technicians, etc.

VII. Teachers--Administrators

To a familiar senior teacher, an administrator may either use "laoshi" (57%) or less frequently, "lao" + FN (36%). However, to an unfamiliar senior teacher, only "laoshi" is used. There are three options with which an administrator may address a familiar junior teacher. He or she may use F + GN as first choice, or either GN, "xiao" + FN or "laoshi" as another choice. Nevertheless, "laoshi" becomes first choice when addressing an unfamiliar junior teacher, F + GN or "xiao" + FN are second choices. Toward a professor, administrators also prefer "laoshi" (93%) rather than "jiaoshou."

A teacher addressing an administrator will prefer using administrative title, such as "shuji," party secretary, and "zhuren," chair. Other forms may be considered as acceptable, such as "laoshi" (4%) and "lao" + FN (2%) but

are least preferable. In speaking to a teacher with a concurrent administrative post, either "laoshi" can be used with equal preference. However, the tendency is to use "laoshi" when the two speakers are familiar, but title when they are not.

VIII. Staff--Staff

The most preferable terms of intimates of similar age are F + GN or "laoshi." "Xiao" + FN is also proper but less common. The least frequent choices are GN, "lao" + FN or "tongzhi." Mutual F + GN is not used between non-intimates of similar age. In this situation "laoshi" is the first choice, "xiao" + FN second, "tongzhi" or "shifu" third.

A junior member will most often use "laoshi" with a senior member whether the two speakers are familiar or not. "Tongzhi," "lao" + FN, or "shifu" are also junior members' choices but they are less preferable. "Laoshi" appears to be the least preferable term when a senior member addresses an intimate junior one. Most likely use is "xiao" + FN, and then he may use GN or F + GN as his next choices. To a junior member of non-intimate, both "laoshi" and "xiao" + FN are the most appropriate choices for a senior member. "Tongzhi" is a second choice in this context, with "shifu" or GN being regarded as a last choice.

IX. Staff--Administrators

The only forms which staff members use toward administrators are "laoshi" and administrative titles. Over ninety percent of the informants from the group of staff prefer T to "laoshi" in speaking to a full-time administrator, whereas only sixty-seven percent of them use T to address a teacher with a concurrent post; the rest prefer "laoshi."

The administrators use either "laoshi" or "lao" + FN in speaking to an intimate senior staff member with equal preference, but in speaking to a non-intimate senior staff member "laoshi" is more preferable (57%) than "lao" + FN (28%). The preferred term that an administrator uses when speaking to a junior staff member whether familiar or unfamiliar is "xiao" + FN. The second choice is F + GN, "laoshi" a third. GN can be heard to be used to an intimate and "tongzhi," to a non-intimate, but they are the least frequent.

X. Administrators--Administrators

Reciprocal addressing practices may exist between members of equal rank and similar age; otherwise non-reciprocal addressing practices will prevail.

Between members of equal rank, the forms of "lao" + FN and "xiao" + FN are the most preferable terms, the second choice, administrative titles (T) are more likely to be used in speaking to a senior member (43%) than in speaking to a junior one (21%). F + GN or GN are possible but they are regarded as the least preferable choices in this situation.

Towards members of a lower rank, the polite forms, "lao" + FN and "xiao" + FN, are still the first choices, with T ranking second. Again T is the preferred choice to a senior member (21%) rather than a junior member (14%). Equally preferable to T, F + GN can also be used to a junior member of lower rank. "Laoshi" can be used as the third choice to senior members of lower rank, whereas to a junior one, the third choice is GN. Nevertheless, in speaking to an administrator of higher rank, T is the only appropriate choice whether he is older (100%) or younger (93%) than the speaker.

Conclusion

Being reflections of social features, the terms of address that the speakers use in this community provide information on perception of inter-personal relationships.

There is a clear tendency for the application of more reciprocal usage between members of the same group, and in applying more non-reciprocal usage between members from different groups. The frequent reciprocal addressing practices between teachers and staff suggest that members of these two groups regard themselves as members of one large group rather than as members of two separate ones.

Distinctions of power and solidarity are reflected by the norms of address used between members. The non-reciprocal norms of address between groups of students and teachers, students and administrators, and teachers and administrators confirm that teachers have certain status over students, and administrators over both students and teachers. The difference is reflected in the social status. The determining factor that governs the selection of an appropriate term between members from these groups is social status, with little or no consideration to age or familiarity.

Concerning teachers and staff, while members of similar age consider familiarity in choosing a proper term of address, members of different ages will regard age instead

of familiarity as the most important factor. While members of higher rank prefer polite forms such as "lao" + FN and "xiao" + FN when speaking to members of lower ranks, the latter will always use T to the former, regardless of age or familiarity.

The sense of solidarity goes downward from senior members of teachers and staff to junior members, from administrators to teachers, and from administrators of higher rank to lower rank by using such intimate or polite terms as F + GN, "xiao" + FN, "lao" + FN or even GN.

As "laoshi" is used in speaking to such staff members as typists, laboratory technicians and administrators, there is no immediate shift of address terms after a teacher or professor becomes the chair of the department. That professor is usually addressed as "laoshi" instead of "jiaoshou." However, the fact that administrative titles are more widely used, especially, the exclusive usage of administrative titles in speaking to a high-ranking administrator, may suggest that at this moment in China, there is a reappearance of a sense of hierarchy.

The infrequent use of "tongzhi" and "shifu" and the appearance of the use of "xiansheng," mister and "xiaojie," miss suggest another interesting trend. After the Cultural Revolution and since the adoption of economic reforms, "tongzhi" and "shifu" have been losing ground. People have begun to prefer address terms which carry no political sense. "Xiansheng" and "xiaojie," which were first used in communicating with foreign visitors, have become more and more widely used. There have been arguments in newspapers for or against the use of these terms. However, we were surprised to find that people in this community with little Western influence have already picked up those forms. This may suggest that these two terms are finding their way into different corners of society. Although too early to make predictions, this change represent an interesting trend as do responses to the reintroduction of "xiansheng" and "xiaojie."

BORROWING IN COLLEGE SLANG

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The fortunes of English speaking people after their migration to the British Isles in the fifth century provided various sorts of language contact which facilitated the incorporation of words from other languages. During the Old English period, the inhabitants of England were Christianized, which exposed them to new concepts and new commodities--the most obvious condition that favors borrowing. The larger European culture that was united by the Latin language of Christianity was also the "higher" culture. With it came literacy in Latin and later in the vernacular and borrowings into English like camel, school, and martyr.

In the ninth and tenth centuries, another language contact situation arose when Northern Germanic speakers settled in the eastern and northern parts of England. These Scandinavians were similar to the English physically and culturally and spoke Germanic dialects that had many features in common with Old English. The types of borrowings from Scandinavian did not arise from a need to name new concepts and experiences, for they point to everyday, familiar notions that the English already had names for, e.g., law, sister, and sky, and even to function words ordinarily resistant to foreign displacement, e.g., are and they.

With the Norman Conquest came the imposition of a foreign-speaking civil and ecclesiastical ruling class. French became the vernacular of status. Although the populace of England never adopted French, many English speakers who had direct contact with the Normans became bilingual to varying degrees and absorbed into their English hundreds of French words, like castle, country, courtesy, duke, pilgrim, and prince. When the descendants of the Norman invaders chose to hold on to their lands in England and to forfeit allegiance to the King of France, maintenance of two separate languages for political and social distance was no longer advantageous to them. In the transition from an elite class who spoke French to an elite class who spoke English, the less prestigious language confirmed its ascending status with numerous, less culture-specific borrowings from French, e.g., allow, carry, join, and move.

The Renaissance brought an information explosion and an attendant nomenclature rooted in Greek and Latin. Writers of English adopted words from the classical languages and made up English words from Latin and Greek parts, a practice which continues to the present, e.g., astronaut, biorhythm, microtechnology. Words of this sort are often multisyllabic and to English speakers have an aura of seriousness, difficulty, or erudition.

During the seventeenth century, French established itself as the vernacular of prestige and aesthetic taste in Europe, and English speakers--even as the British nation outstripped France in empire building and power--continued through the nineteenth century customarily to borrow vocabulary of diplomacy, fashion, and gracious living from French.

With the expansion of the British Empire, the English language came in contact with languages of many different linguistic types throughout the world, borrowing mainly words for new things and experiences, e.g., sofa from Arabic, khaki from Hindi, chimpanzee from Kongo, pow-wow from Algonquian. In the United States, the various migrant groups largely abandoned their native languages for English but left scattered traces in borrowings, mostly nouns and often the names of foods, e.g., cookie from the Dutch, pretzel from Germans, taco from Hispanics, and gumbo from African-Americans.

In generalizing about borrowing in English, some distinctions made by Leonard Bloomfield are useful. Bloomfield distinguishes between dialect borrowing (same language) and cultural borrowing (different languages), and within cultural borrowing between ordinary and intimate. Intimate borrowing

occurs when two languages are spoken in what is topographically and politically a single community. Intimate borrowing is one-sided: we distinguish between the upper or dominant language, spoken by the conquering or otherwise more privileged group, and the lower language, spoken by the subject people, or, as in the United States, by humble immigrants. The borrowing goes predominantly from the upper language to the lower, and it very often extends to speech-forms that are not connected with cultural novelties. (461)

Throughout its history English has favored ordinary cultural borrowing rather than loan translation for incorporating new referents, e.g., aerodynamics, tomato, and democracy.

The type of borrowing that took place from Scandinavian during the Old and Middle English periods appears more akin to dialect borrowing. The languages were certainly very similar and perhaps mutually intelligible. Although English was the language of the king and was written by a few, in status neither English nor the Northern Germanic dialects were linguistically dominant, for both were subordinate to Latin and, after the Conquest, to French and Latin. The types of borrowing into English--like the [sk-] of skirt and the [g] in get and give--suggest a pattern of free variation in which Scandinavian forms won out in some instances and native forms in others.

Bloomfield offers Middle English borrowings from French as "the classical instance" of intimate cultural borrowing in which the lower language survives. Borrowings from the upper language

completely transformed the lexicon of English, adding an enormous layer of non-native vocabulary. (464)

For English, ordinary cultural borrowing reflects an openness of the speech community to new, different, or exciting areas of experience with little risk to sociolinguistic distinctions already incorporated into the language. On the other hand, dialect borrowing and intimate cultural borrowing imply negotiation of the status of the groups doing the linguistic borrowing and lending.

In the overall picture of borrowing in English, how does slang fit in? The salient fact is this. In a corpus of college slang from a predominantly white, southern university (UNC-CH) collected 1972-1991, fewer than 100 of at least 3,000 separate lexical items can be construed as borrowings from foreign languages, and only about ninety others can be classified as dialect borrowings.

The interesting issues that borrowing in slang present are these. Since English slang exhibits the same word-forming processes as does the general vocabulary and since borrowing from foreign languages has been the greatest source of new words in the documented history of English, why is borrowing a negligible way of acquiring new words in slang? And can an examination of the few instances of borrowing reveal something about the nature of slang?

Let us turn now to the instances of borrowing in my corpus of college slang.

Borrowings from other languages can be grouped into a series of categories based on the degree of foreignness. Many are not original borrowings from foreign languages and are already sufficiently a part of English to be listed in dictionaries. Many I would not even consider slang, like siesta 'afternoon nap', but for a while at least they were part of the vogue vocabulary on campus and reported by students as examples of good, current campus slang.

Two sets of borrowed words in slang are already at home in English. Foreign words listed in English dictionaries as ordinary words without usage labels are beau 'boyfriend', diva 'prima donna', mousse 'foamy preparation for the hair', pissoir 'public toilet', and siesta 'afternoon nap'. A clipped form gig < gigolo has changed in meaning to 'a male who dates many women', and mousse becomes a verb with the addition of the particle up. Alter ego, a perfectly standard vocabulary item in general English, in slang has come to mean 'identification', sometimes called I.D., also an allusion to Freudian psychology.

Other foreign words are already part of the slang and informal vocabulary of English and appear in either slang or conventional dictionaries. These are capeesh 'understand', chutzpah 'brashness', ducats 'money', ganja 'marijuana', hombre 'guy', macho 'offensively masculine', politico 'politician', schlock 'inferior merchandise', schm- 'derisive prefix', schmuck 'detestable person', and shekel 'money'. Of these, politico has specialized to 'a campus political figure'. Schlock has shifted

slightly to mean 'out of fashion, trite' and has inspired non-schlock, which means 'avant garde'. Shekel has shifted to mean also 'give, hand out', as in "Shekel me some of those Scoobie snacks." Other established items of slang which are also borrowings have changed more drastically in meaning. Blitzkrieg and its more frequent clipped form blitz, which mean 'defeat' or 'drunk' in general slang, in college slang also mean 'to perform well on a test'. Commando, 'overeager person' in general slang, in the phrase go commando means 'without underwear'. Gonzo 'insane, wild' becomes one of the many synonyms for 'drunk' in college slang.

A handful of college slang expressions are common foreign words which retain the meaning and the approximate form of the source language: chica 'girl', beaucoup /buku/ 'a large quantity', tres 'very', ciao 'goodbye', grazie 'thanks', and que pasa 'how are you?'. These are simply sprinkled into the conversation in place of an English equivalent.

Others are more complicated. Faux /fo/, a clipping of faux pas, is a noun or a verb: "That was a real faux."/"I really fauxed that time." Fois /fwa/, from French 'time, instance', means 'reminiscent of European style': "How do you like my fois sweater I got in France?" A set of borrowings are translations of slang expressions. Fromage is occasioned by slang cheese < cheezy 'objectionable'. Legume translates slang vegetable. Luego replaces the farewell later, and mange is a regular verb for 'eat': "We manged peanut butter and jelly sandwiches at midnight." The Nazi motto sieg heil in 1974 was merely an affirmative response to "How are you?"

At least two French expressions preserve form but with an entirely different meaning. La vogue means 'the women's toilet' and escargot, in a play on his cargo in English, means 'male walking arm in arm with his date'.

In four instances a foreign proper name is used. Ponch, a clipping of the name of the Cisco Kid's sidekick Poncho, is 'a noun of address for males'; and guido means 'macho'. Capitalizing on the sounds of foreign names are sarajevo 'goodbye', from the site of the 1984 winter Olympics, and gorbachev, a substitute for gesundheit when someone sneezes.

The foreignness of the sound seems to be a large part of the appeal of borrowing in slang. Mock Latin doscus and its clipped derivatives dosc and dosh mean 'fool'. Schlub 'fight' and schmiele/schmielage 'female' appear to be mock Yiddish, and schmegma 'gross, slimy' a mock Yiddish rendering of the clinical smegma. An endearing suffix from the non-WASP sounding name Rosenblatt is -blatt, as in dudeblatt. Mongo 'huge' and the term of endearment mongolito are perhaps mock Spanish. Mutile is phony French for 'an incapacitated, immobile person', and the French pronunciation of the suffix -ment in solidment makes the affirmative response solid more emphatic. Campus cafeterias Lenoir and Chase are ironically associated with French cuisine by the mock French pronunciations Lenwah and LaChaise. German meister 'master' has become a popular second element in compounds like

slackmeister. Made popular by the television program Saturday Night Live, the suffixes -meister and the Japanese -san are added to proper names to convey familiarity, e.g., the name Mary Walsh becomes Marysan or Walshmeister. Brewski has long been a slang term for 'beer', but the Polish-sounding -ski is also a suffix added to the name of a person who does something stupid:

"Toddski, you went away for the weekend with my car keys in your pocket." The derogatory ching-chang face for 'someone who does something stupid' might allude to Orientals.

In the most drastic alterations of foreign expressions, approximate English phonetic equivalents are substituted, often resulting in nonsense. Almost all of these are phrases learned in introductory foreign language classes. The meaning of the expression comes from the source language, not from the English words. Three blend-like expressions retain Spanish elements: hasta la bye bye, hasta hasta pasta, and adios amoebas mean 'goodby'. Hasta manana 'see you tomorrow' > hasty bananas. S'il vous plait 'please' > silver plate and seafood plate. Adios amigos 'goodby friends' > osmosis amoebas. Merci beaucoup 'thank you very much' > mercy buckets and mercy buttercups. Au revoir 'goodby' > o'river and Paul Revere. Auf wiedersehen 'goodby' > my feet are staying.

Not borrowing but, I think, playing on the phonological shape of learned borrowings in English, are the malapropisms and pseudo-learned imitations in slang. Among the slang items that seem to derive their humor from the polysyllabic Latin and Greek based elements of the vocabulary are sleazoid 'sleazy', motivate 'leave', laminite 'a phony', somnambulance 'someone who is funny, likable, crazy', hypnotist 'crazy person', arbitrary 'insignificant'.

The type of borrowing more suitable to slang than borrowing from foreign languages is dialect borrowing. Often it consists of stereotypic mock pronunciations of foreign-accented speech and regional dialects. Wronga pokes fun at foreigners speaking English who end words with vowels. Must to parodies a minor structural error, as in "I must to study for my test." Raw's 'Roy Roger's Restaurant' and y'all 'to sound like a Southerner' imitate the speech of the South, while I guarantee imitates Cajun chef Justin Wilson's dialect. Mah-va-lous, made popular by Billy Crystal on Saturday Night Live, and pahty imitate r-less dialects.

The largest set of dialect borrowings in the UNC-CH corpus of college slang, about ninety items, comes from black vernacular English. About half are sufficiently identified with black speakers that they are so designated in dictionaries, e.g., ace buddy 'best friend', blood 'black person', blow 'sing', boogie 'party', boojie 'middle class', fly 'attractive', fox 'sexy female', homeboy 'someone from the same hometown', jive 'deceptive talk', word up 'exclamation of agreement'. A few others imitate black vernacular syntax: what it is 'greeting'; we be (Verb)ing; won't not me 'It wasn't I'; She think she Jackie, but she not. She really Agnes. 'conceited'.

The meanings of the terms borrowed from black vernacular are even more limited in semantic range than is college slang in general. Most of the items pertain to personal and social relationships--verifying group membership, looking good, and having a good time. There are no words for academic matters, none for drinking or drunk or vomiting, and none for performing poorly. Taken as a group, the image conveyed by the words associated with blacks is a stereotypic one: blacks like to get all dressed up and to get together having a good time dancing and laughing and greeting each other. What the white students seem to enjoy about the borrowings from black vernacular is what is sometimes called the 'expressive features'--the high-fiving, using more extreme ranges in intonation, the nouns of address, body language, etc.

How then do the foregoing characteristics of borrowing in slang suit the purposes of the slang portion of the lexicon? First, slang seldom acquires new words by borrowing from foreign languages because groups that cultivate slang are directed inward, not outward. They are more interested in maintaining a line of demarcation between themselves and others than in going beyond themselves to embrace the experiences of others. Second, when slang does incorporate foreign words, the attitude is likewise self-centered and conveys the notion that the foreign language is somehow not a worthwhile language because it does not sound like English. Forcing the foreign sounds to approximate words in English becomes the basis of humor. When the foreign expressions are those associated with classroom experiences of foreign language learning, the attitude is also anti-intellectual. Mock foreign expressions rely on stereotypes, generalizations about a group that are consistent with the us vs. other social function of slang. Third, dialect borrowings in slang reverse the pattern in which a lower variety borrows from a higher one. Slang in general borrows from the dialects of groups on the margins of society--jazz musicians, entertainers, gamblers, etc. College slang borrows most heavily from the dialect of blacks, on the surface seeming to depict a group of lower status as appealing and worthy of imitation. Yet a closer look shows that the borrowings from black vernacular are fairly cautious and are filtered by the stereotypes of mainstream society. In sum, borrowing in slang reinforces the normative function of slang.

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WHY IS LANGUAGE DIFFERENT?

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For almost two centuries leading linguists have tried to dispel the mysteries of language through science. Some mysteries indeed have been dispelled, but linguistics even today has not developed a scientifically acceptable body of theory: there are nearly as many types of grammar extant as there are leading linguists to promote them, and it is not at all clear that we can choose among them using scientific criteria. This has led to a reexamination of the foundations of linguistics (See Yngve (1981, 1986a, 1986b, and many LACUS papers).

1. The criteria of acceptance in science

Let us start by recalling that science studies the phenomena of nature. It operates by proposing theories of what may be true of the world and testing the theories through observation and experiment. In this the criterion of acceptance of observational facts is their public reproducibility when questioned and the criterion of acceptance of theories is their ability to pass appropriate tests against observational evidence when challenged. The late Nobel laureate Richard P. Feynman put it this way:

The principle of science, the definition, almost, is the following: The test of all knowledge is experiment. Experiment is the sole judge of scientific "truth." But what is the source of knowledge? Where do the laws that are to be tested come from? Experiment, itself, helps to produce these laws, in the sense that it gives us hints. But also needed is imagination to create from these hints the great generalizations--to guess at the wonderful, simple, but very strange patterns beneath them all, and then to experiment to check again whether we have made the right guess. [1963:1-1]

When Feynman says "experiment" he includes careful observation as of the planets through telescopes.

The modern criteria of scientific "truth" have been honed by scientists over the last four centuries or so. What has worked has been retained and what has not worked has been discarded. The result is a stable uncontroversial tradition passed on during scientific training. Science operates with the bare minimum of assumptions. Briefly: (1) that there is a world out there to be studied, (2) that it is coherent, so we have a chance of finding out something about it, (3) that we can reach valid conclusions by

reasoning from valid premises, and (4) that observed effects flow from immediate causes, which underlies normal observational inferences. Science accepts no further or special subject-matter assumptions without scientific justification using the above criteria of acceptance.

If we wish to learn how to do good science, we would best study science under good scientists or at least read books like that of Feynman. Reading in the philosophy of science for this purpose will be counterproductive because philosophers seldom agree and often have their own philosophical axes to grind. One would not learn to paint from art critics, no matter how insightful their criticisms might be.

The application of the standard criteria of acceptance in science has led to great successes in expanding our knowledge of the natural world. Consider advances in our knowledge of the age and structure of the earth, the nature of the solar system and the universe, and the physical properties of solids, liquids, gases, even semiconductors and superconductivity. Consider the advances in understanding the chemical properties of matter including the synthesis of many entirely new chemical compounds. Consider the advances in understanding human physiology and disease states and advances in molecular genetics and heredity.

Science rejects theories if they cannot meet the standard criteria of science or if they cannot even be tested by experiment or observation. Since none of the many grammatical theories so far proposed has ever met the standard criteria of science, they would all be rejected by science.

2. Problems of criteria in grammar

Normative grammar is not and never has been a science. It grew out of Alexandrian classical scholarship and Stoic semiotic theory in the second century B.C. The Stoic triadic theory of signs is still influential today through its descendents in logic and philosophy, and the Greek and Latin grammatical tradition erected on its metatheory has supported literacy in the Western world for over two millennia. The conceptual structure of this joint philosophical-grammatical tradition is now so deeply entrenched in Western thought and is so familiar to us through its concepts embedded in our very language that to layman and linguist alike it has seemed obviously true and beyond question.

But problems have always plagued grammarians from ancient times right up to today. For example, Ian Michael (1970) found 259 grammars of English written or printed in England between 1586 and 1800. They represent 56 different parts-of-speech systems. Many types of sentence diagramming were proposed in normative grammar in the last century and they continue to proliferate in

modern linguistics. See the insightful review by H. A. Gleason in his Linguistics and English Grammar (1965).

Normative grammar, not being a science, has always had problems with its criteria of acceptance. And its semiotic cotheory in philosophy has been of no help in this regard either: being true to its origins it, too, is not scientific.

3. Problems of criteria in modern linguistics

The nineteenth and twentieth centuries saw efforts to make linguistics scientific. Many linguists believe that linguistics is already scientific; others think it would be desirable to develop linguistics further as a science. We speak of "linguistic science" and the "scientific study of language." But efforts to make linguistics scientific have failed because of the strong influence of the nonscientific philosophical-semiotic-grammatical tradition.

Schleicher (1850), following earlier suggestions, proposed that language be thought of as an organism like the other organisms of nature, animal, vegetable, and mineral--a kind of fourth kingdom of nature. This effort did not work but its influence remains in some of the concepts of language as a system. Saussure pointed out that linguistics is not like the other sciences because it creates its own objects of study (1916; 1959:8). He suggested that linguistics would turn back to traditional grammatical studies but with new procedures (1959:83). Bloomfield realized that linguistics was based on assumptions rather than on the study of physical reality and introduced his "fundamental assumption of linguistics" (1926; 1933:78), which was not supported or justified by any scientific criteria. More recently, unsupported and scientifically unjustified assumptions have multiplied with abandon, particularly in the work of Chomsky and some of those influenced by him.

Resting on unsupported assumptions, the study of language does not have a proper scientific foundation and therefore is not scientific at all even though it may use tape-recorded utterances as data. A study of ghosts would not be made scientific by putting a tape recorder in an allegedly haunted house because such a study would still rest on the unsupported assumption that there are ghosts.

Some philosophers have tried to justify unscientific theories in linguistics and elsewhere by trying to change the rules of the game by arbitrarily redefining science so that every object would be studied by methods appropriate to that object. Nonsense. A study of ghosts could not be made scientific by proposing a new type of science just for ghosts. Allowing such free exemptions from standard scientific criteria would leave science powerless to reject false theories.

As a result of its nonscientific foundations, linguistics has had many problems establishing its facts and accepting or rejecting its theories. Let me list a few of the questions that seem reasonable but cannot be studied scientifically because, like the study of ghosts, they involve unsupported assumptions:

- 1) What is a word? How many words are there in a given recorded utterance?
- 2) What is a phoneme? How many phonemes are there in English?
- 3) What is a syllable? How can we segment a given utterance into syllables?
- 4) What is a morpheme? How many morphemes does the word "run" represent in English?
- 5) What is a part of speech? How many parts of speech are there in English. What are they?
- 6) What is a sentence? What is the structure of a given sentence? How does one diagram sentences?
- 7) What is meaning? What does a given word mean? What does a given sentence mean?
- 8) What is language?
- 9) What is a language?

These questions cannot be investigated scientifically because concepts of language and grammar do not rest on a scientifically justified foundation but instead on unsupported assumptions that cannot be checked. The criteria of science do not apply in the grammatical domain just as they do not apply in philosophy or in logic. Theories in these domains are not falsifiable in Popper's sense.

4. Criteria in a linguistics focused on people

The criteria of science, which involve observation and experiment, can only be applied to objects observable in the physical sense. Because such objects are rooted in reality they do not have to be introduced by unjustified assumptions. If linguistics is to be scientific it must make statements ultimately testable against the real world. A way to do this is at hand, for linguists have frequently tried to find explanations in terms of people. One could mention the proposed explanations of the neogrammarians, much of the work in historical linguistics, and modern work in psycholinguistics, sociolinguistics, and elsewhere. Linguistics actually could be scientific if it focused on people,

for people can be observed and can even be the subjects of experiments.

Unfortunately, most statements in linguistics proposing explanations in terms of people also incorporate unsupported and untestable assumptions about language inherited unquestioningly from the grammatical tradition. It does make sense to inquire into the structures of the individual responsible for talking and understanding, but to assume that people have grammars in their heads is like assuming that allegedly haunted houses have ghosts in them. A grammar is not a scientific theory of an individual or of a community. Grammatical theories are not theories of people at all: they are theories of language, whatever that is, and as such they cannot be tested using the normal criteria of science.

What we need to do is to find out how to make significant testable linguistic statements directly in terms of people without introducing unsupported assumptions about language or grammar. We must give science first place. We must reexamine all our linguistic concepts and develop a new foundation to replace the philosophical-grammatical foundation inherited from the tradition (Yngve 1986b).

Let us take a preliminary look at the beginning of such a reformulation:

- 1) Instead of studying language, we study how people communicate, both verbally and nonverbally. The necessity for including nonverbal phenomena has been emphasized by many, including Pike (1967:28-32), who gives examples of verbal and nonverbal elements substituting for one another in function.
- 2) Instead of developing grammatical theories of language we develop scientific theories of people from a communicative point of view.
- 3) Instead of seeing children as acquiring language, we see them as starting to talk, or rather, to communicate both verbally and nonverbally.
- 4) Instead of speaking of the development of language, we speak of the development of the child.
- 5) Instead of searching for the grammatical properties of language, we search for the communicative properties of people.
- 6) Instead of seeing people as using language or as speaking words and sentences, we see them as carrying out communicative tasks.
- 7) Instead of seeing a person as a language user, we represent

a person as a communicating individual, a concept that owes nothing to the grammatical tradition.

8) Instead of speaking of a language community, we conceive of a linkage of communicating individuals, a concept that includes also representations of parts of the physical environment that may affect communicative phenomena.

9) Instead of contested definitions of language, we see observable behavior as communicative if it affects subsequent observable communicative or noncommunicative behavior of the same person or others.

10) Instead of seeing pragmatics as being concerned with language use, we see communicative behavior as changing the properties of people.

11) Instead of speaking of meaning being conveyed by language, we see communicative behavior as causing changes in the linguistic and nonlinguistic properties of people.

12) Instead of a concept of an internal grammar we see the properties of a communicating individual as structured in what we call an individual plex.

13) Instead of a concept of the language of a community, we conceive of a linkage as structured in a linkage plex.

14) Instead of saying that utterances are partly alike and partly different, and no two utterances are exactly alike phonetically, we talk about observable communicative similarities and differences of people, and observe that no two people are exactly alike communicatively.

15) Instead of proposing properties of language, we use standard reasoning from observed communicative similarities and differences of people and postulate properties of people structured in individual and linkage plexes and then test these theories against further observational and experimental evidence from people.

In this way linguistics can become a science in the same sense as the physical and biological sciences, which investigate the physical, chemical, and biological properties of matter. This linguistics will investigate the linguistic properties of people, which is also a special case of studying the properties of matter.

In this paper I have tried to explain how the conflict of goals between following the grammatical tradition and following science has caused problems for linguistics for over a century and a half. Grammar and science are fundamentally irreconcilable. The incompatibility between science and grammar can no longer be ignored nor its ill effects in linguistics tolerated. If we want

to develop a scientific linguistics, we must give science first priority over the grammatical tradition. A focus on language as an abstract entity introduced by assumption must be given up in favor of a focus on people. We must develop linguistic theories of people that do not lean for support on grammatical concepts but instead are a part of standard science. To do this we must reexamine foundational issues and formulate linguistic concepts and theory that can be tested at all levels, including the most fundamental level, against observational and experimental evidence.

Those who are interested in exploring further the question of moving linguistics completely into science are invited to join an ongoing workshop by mail by writing the author at 28 Crest Drive Dune Acres, Chesterton IN 46304, USA.

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JOHN PICKERING AND 'THE AMERICAN LANGUAGE'

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John Pickering (1777-1846) though largely unknown today was a very major figure in the early history of American linguistics. While there has been some recent recognition for the work of his friend and often collaborator Peter Stephen DuPonceau (1760-1844),¹ Pickering has not yet received the recognition that he is due.

In good part this is due to a general lack of knowledge about the work of pre-Neogrammarian linguistic work, and a general feeling that this work was somehow pre-scientific, or seriously misguided. Most linguists think of linguistics as having sprung up, almost out of whole cloth, first with an age represented solely by an interest in historical linguistics, and then, after de Saussure, by an interest in Synchronic linguistics, in particular as American linguists began working in American Indian languages. Work prior to this period has been dismissed as misguided at best and as having done so much violence to the languages described, that the descriptions are almost completely without value.²

It is important that we critically examine the work of Pickering and other linguists of his and earlier periods to see if these characterizations are correct, and it is my contention that such an examination will establish that there is great value to be derived from many of these early works. In

1. Campbell and Mithun 1979, Goddard 1981, Guice 1987, Haas 1969, Hoijer 1981, Robins 1987, and Smith 1983.

2. Note Bloomfield's attitude towards early Spanish descriptions of Tagalog: "I have examined all the treatises on Tagalog accessible to me. No experience could show me more clearly than the reading of these books the necessity of linguistic and especially phonetic training for anyone who wishes to describe a language. Not one of the works in the following list contains an intelligible description of the pronunciation of Tagalog" (Bloomfield 1970, 81). See also his comments in Language (1933) pp.3-10.

particular, we can see in the work of Pickering an interest in synchronic linguistics and more general linguistic questions that well predates de Saussure. We can note the effect that Whitney had on de Saussure and trace the influence of earlier work on Whitney. While these earlier scholars were certainly not professional linguists, in that Pickering and DuPonceau worked as lawyers professionally, there was a continuity and community of scholarship, and a large body of significant work was produced, which shaped the present and future shape of linguistics.

Throughout the nineteenth century and early twentieth centuries the history of linguistics in the United States can be seen as an intertwining of four areas of research:

1. An interest in the American Indian languages.
2. An interest in the classical languages.
3. An interest in describing American English, often related to questions of the development of an American English or standards of correctness.
4. An interest in more general questions of synchronic linguistics, concerned with such questions as the development of general transcription systems, or typological analysis.

While some linguists confined their work to one area of speciality (for example J. Hammond Trumbull's work was confined to the American Indian languages of New England), many worked in more than one of these areas (Whitney certainly exemplifies this). Pickering was quite active and well respected in all four of these areas of research. He published a quite well received dictionary of Greek (Pickering 1826) and articles on Greek pronunciation, and was involved in reforming the teaching of Greek in the US and elsewhere. He was quite instrumental in republishing early "lost" descriptions of American Indian languages, as well as studying Cherokee and starting a grammar of Cherokee. He was quite instrumental in disseminating materials on the American Indian languages and in promoting the study of those languages. He developed a phonetic transcription system for the use of researchers, which was described as "nothing more nor less than a start towards an international phonetic alphabet".³ He discussed the grouping of all American Indian languages into four main stocks, commented on what has been termed Roger Williams' sound shift in the eastern Algonquian languages, and clarified the use of the terms 'exclusive' and 'inclusive' for plurals. Not

3. Edgerton 1943, 27.

unlike many researchers of our own day he felt that, especially as far as the American Indian languages was concerned, the primary task facing researchers in his day was the collection and preservation of facts, and not the formation of general theories.⁴

It is his interest in American English that is the focus for our discussion here. It was in this area that he first published an 1815 article, "Memoir on the Present State of the English Language in America", and an 1816 book, A Vocabulary or Collection of Words and Phrases which have been Supposed to be Peculiar to the United States of America. He continued to write on this subject, often in general forums such as the North American Review and the Encyclopedia Americana, as well as corresponding throughout his life on this topic. These writings of his brought him into conflict with Noah Webster, and in part seem to have been written to address what Pickering viewed as errors in Webster. Webster responded with his 1817 book, A Letter to the Honorable John Pickering on the Subject of his Vocabulary; or Collection of Phrases, supposed to be peculiar to the United States of America, in which he attacked Pickering and stated his own views. In this exchange a number of theoretical views were proposed and specific questions of language variation and change were addressed by both scholars. It is primarily these fundamental theoretical issues which separate their views, and these will therefore be the focus of much of our discussion. Pickering is to some extent guilty of a form of prescriptivism, though Webster is also to some extent, and thus it is not an issue of one describing while the other prescribes, but more fundamental issues that separate their views.

Pickering's 1815 "Memoir" begins by stating his reasons for writing, that "as our language is to be the instrument of communicating to the world the speculations and discoveries of our countrymen in science and in literature ... unless that language can be well settled, and can be read with ease and satisfaction by all to whom it is addressed, our authors will write and publish, certainly under many disadvantages, though perhaps not altogether in vain"

4. Pickering agreed with DuPonceau who expressed the view that "Facts ought to be collected and observations multiplied long before we venture to indulge in theoretical inferences; for unobserved facts often seem to lie in ambush, to start up at once in the face of fine spun theories, and put philosophers in the wrong". (DuPonceau 1819, 399).

(439). He is not stating that at the moment of his writing American and British English had already diverged to any very great extent, but that if such a divergence was not checked it would in the future cause such difficulties for American scientists and authors. Perhaps the time will arrive when "Americans shall not be able to understand the works of ... English authors, justly styled classic [authors], without the aid of translation into a language that is to be called at some future day the American tongue!" (440)

He felt that this movement towards a new language and away from British English while natural and even unavoidable to some extent, could be slowed down and controlled if leading figures were careful to follow British standards and avoid Americanisms such as the ones he collected in his Vocabulary. He comments, in fact, that the language of the United States has "perhaps, changed less than might have been expected, when we consider how many years have elapsed since our ancestors brought it from England" (446-447), but that such language change should not take anyone by surprise. "That a radical change in the language of a people, so remote from the source of it, as we are from England, is not a chimerical supposition, will be apparent from the alterations that have taken place among the nations of Europe, of which no instance, perhaps, is more striking, than the change and final separation of the languages of Spain and Portugal, notwithstanding the vicinity and frequent intercourse of the people of those two countries" (450).

By the "incessant" study of model writers such differentiation can be avoided, and by checking the habits that the American people have shown for the forming of new words, this propensity for language change can be checked. By noting "every unauthorized word or phrase" (447), and starring (*) those which do not seem to be necessary, people will avoid using them, or at least a comprehensive list will be developed which could be referred to when writing to Englishmen so that Americans could "write in a language that Englishmen can read with facility and pleasure" (439).

He is clear to point out that this change in language is not deliberate, as some English writers claimed it was, but a natural effect of the separation of two groups of speakers from each other. He proposes three types of language change which have come into American English:

1. The formation of "entirely new" words.
2. The attachment of new meanings to old words.

3. Words which have changed ("become obsolete") in England maintained their original meaning in the United States (441).

He gives extensive examples of these three types of change, especially in his Vocabulary, explicitly again setting the standard of the language "as spoken and written in England at the present days" (441). He does speak of the purity of the English language, but in terms which are focused on what he views as a real threat to the mutual intelligibility of British and American English, not on the basis of a view of language change as necessarily being merely decay.⁵

Webster's response to Pickering (1817) addresses each of these three types of language change described by Pickering in some detail. In particular he addresses Pickering's discussion of language change and the possibility of such change.

Webster addresses a good portion of his argument to considering whether this is really language change, and to how the languages are changing. He states that while Pickering has claimed that Americans have formed new words that is actually an impossibility, in the sense of radically new words or new roots. "In this sense, probably, no new words have been introduced, either into the English or into any other language, since the dispersion of men [The Tower of Babel]. I have examined nearly twenty languages, or rather dialects, (for all languages are dialects of one primitive language), from the beginning of the alphabet to the end, and some of them many times, and I have not found reason to believe that any new roots, or new families of words, have been introduced since the dispersion - or a period immediately succeeding the event" (7). In particular he addresses Pickering's example of Portuguese and Spanish and says that "the great body of words, in both languages, is the same. The same remark is applicable to all the languages of Europe; and, with some limitation, to all Asiatic languages which I have examined" (5). Thus language change is limited to the development of new derivational forms, to the shifting of parts of speech, to the shift of meanings, and to the loss of local words in certain communities, while other communities

5. Though prescriptivists took Pickering as supporting their views, as can be seen in this comment by Sir William Scott which was made in response to Pickering's Vocabulary "If every man has a right to coin words, great corruption must follow, such a deed ripening into a habit." Mary Orne Pickering 1887, 305.

maintain them. When Webster refers to 'new' words, he only means new derivations of previously acceptable roots and affixes.

The introduction of these sorts of new words is to Webster a very positive thing. He states that "rarely, indeed, do we find a new word introduced into a language which is entirely useless. In most instances, the use of new terms is dictated by necessity or utility" (7). The adoption of these new derived words by either general or local use, is enough to make them appropriate. "These benefits, which are often perceived as it were instinctively by a nation, recommend such words to common use, till the cavils of critics are silenced by the weight of authority" (7). He engages in a bit of jingoism by stating that such formation of new derivatives will go on "without a license from Englishmen" (7). As long as new derivative forms are not introduced "without reason, nor contrary to its [a language's] analogies" (28) they are worthy of adoption.

The shift of the meaning of words he terms "New applications of legitimate words" (7) and he heartily approves of, commenting that Americans should have a greater latitude in this than the English, since they are exposed to new objects, ideas, and associations of ideas. He also discusses at length the mechanisms of semantic change, observing that words begin as representations of concrete things, which are then associated with abstract ideas, which causes the concrete terms to become more abstract. He does not allow for the reverse to happen. He also observes that there is a regular pattern of verbs being the "root of most words - probably of all" (9), and that from these verbs nouns are formed and from nouns new verbs are formed. "This mode of forming verbs, adopted, I believe, by all nations, was, doubtless, the offspring of convenience, for it abridges language, without obscuring the sense" (9). This sort of functional shift, which Pickering gave examples of, Webster sees as "one of the most useful inventions in the structure of language" (9), and that to stop this would be to stop real progress.

In regards to local words, Webster states that all languages and dialects have these and it is impossible to prevent it. In his view these are not new words, but rather vestiges of old words that some segments of the society have lost, while some retained them. These words are of "legitimate origin" (11), and are not new words at all. While their use is perhaps not general

they are still a part of that local group which maintains their use.

One question which Webster does not address clearly is the basic one posed by Pickering. He seems to take it for granted that languages, while they do gradually progress, do not ever seriously diverge from each other. Change is a positive good, and does not seem to threaten loss of mutual intelligibility in the future. Change does not seem to be at all wide spread to Webster, in that there are really no new words, and no new local terms arise, only older terms were previously unnoticed. Webster does seem to be less prescriptive, if less exact than Pickering in terms of defining when a word becomes standard and acceptable. He speaks in very general terms of 'the nation' and 'general' or 'local' use. It is worth noting that he was defending the acceptance of words which he had already placed in his dictionary, presumably on his own authority, at least in part.

While neither Pickering nor Webster have a completely modern view of language change, Pickering seems clearly to have been more aware of the extent of language change, though Webster did comment on some mechanisms of change. Pickering certainly did not foresee some of the technological advances which have effected the speed of language change in English, but his observations seem to be often insightful, and not the prescriptivism that one would perhaps expect.

Hopefully this has demonstrated the fact that there is much of value which can be gleaned from earlier linguistic works. We must revise our understanding of the history of linguistics to admit the need for, at the least, a careful examination of earlier works.

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IS A STRUCTURAL GRAPHEMICS POSSIBLE?

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For Chas Hockett's 75th birthday

Nearly forty years ago, Uriel Weinreich (1954) answered a similar question positively: Yes, a structural dialectology was possible; and he proceeded to outline such an enterprise. I, I'm afraid, must take the negative position on my question. There cannot be a structural graphemics.¹

The reasons are twofold: the nature of writing systems, and the meaning of the term *-eme*. I must take them up in reverse order.

My basic assumption is that any entity in linguistics (or anthropology) that uses the emic and etic terminology ought to use it in the technical sense developed for it by the line of scholars that includes W. Freeman Twaddell (1935) and Kenneth Pike (1967). We can be amused by the pretension of educationists who use *phoneme* as a variant of *sound*, or by the ignorance of the ubiquitous radio commercial that announces "there are just 44 sounds in the English language. These sounds, called 'phonics,'" But no linguist should use a term *grapheme* without a detailed, explicit theory of graphemics, graphetics, allographs, maybe archigraphemes and other accoutrements of emic theory. And I have not yet found one linguist using *grapheme* who has justified the term, or for whom it means anything more than 'letter' or 'diacritic'.

Specifically, two important studies in the field of Semitic studies are called "Systematic vs. autonomous phonemics and the Hebrew grapheme *dagesh*" (Malone 1975) and *The graphemes of Tiberian Hebrew* (Schramm 1964). Both their authors have confirmed to me (pers. comms., 1990) that they did not operate with any theory of graphemics; they used the term *grapheme*, I suppose, because it had a more scientific sound.

I have hunted in the literature for an exposition of "graphemic" theory that does not assume the existence of a unit called *grapheme* and build from there. I doubt that I have seen everything written on the topic (since there is no bibliography for the field), but I have not

¹I would like to express my appreciation to M. O'Connor for his hospitality and his (as always) valuable comments on this presentation, and to Steve Murray for useful remarks on this article.

yet come upon any such theory. I can mention three scholars, one European, specifically Praguian, in outlook; one American descriptivist; and one spanning the two communities.

Joseph Vachek is well known for his insistence, contra Sausure (1916: 23) and Bloomfield (1933: 21), that written language is not merely a representation of real language: that it is a coordinate system to be studied in its own right (1939 and *passim* in the 1989 collection). In this he is not wrong (and it is very important to keep apart two senses of *writing*, namely 'writing system' and 'written language'); though he can scarcely be followed in his claim that languages that do not ("yet") have writing systems have not "developed the latent possibilities of the language to the full" (1989: 20). He could, on the other hand, make a stronger case if he were more accurate as to the history and nature of writing systems. He asserts, for instance, that writing began as a "mere" representation of spoken utterances; but this is not correct. In each civilization that has independently given rise to writing, the earliest documents are precisely *not* representations of spoken texts (Cooper ms.). In Mesopotamia, they are ledgers; in China they are divinatory devices, though Keightley (1989) notes that the beginning of writing in China coincides with a period that obviously saw a great increase in commercial activity, and suggests that it is there, rather than in the sacred sphere, that writing began; in Mesoamerica it may be calendars that are earliest, or censuses. Vachek also claims that scripts do not contain units that are composed of distinctive features. For the Greek-derived alphabets that he knows exclusively, this is correct; but it is not true of the Korean script, which in origin (if not in use) indicates phonetic features in each letter (Kim 1983: 81–84). (I return below to the problem of the multiplicity of script types.)

Other Europeans — this seems to have been a specialty of East German linguists — have been greatly concerned with relations between the phonemic and "graphemic" "levels" of grammar (e.g., several articles in Nerius & Augst 1988). But I have not yet found a German scholar who has undertaken a definition of the unit *grapheme* itself. A brief French essay by Robert Martin (1980) has isolated three classes of characterizations in the literature, but none of them seems to make much sense:

1. grapheme = letter/character of the alphabet (the allo-graphs are the forms of the letter in writing, in printing, and encompassing the distinction between capitals and minuscules);

2. grapheme = minimal unit of signifier that distinguishes morphemes and is characterized by a collection of discrete visual features;
3. grapheme = the smallest unit of the written form of the language that cannot be subdivided into smaller units that remain graphic counterparts of units of the spoken form.

As Martin indicates, these definitions lead to three different graphemic segmentations of the French word *temps*; this comprises

- (a) 5 graphemes according to definition [1]: t/e/m/p/s
 - (b) 2 graphemes according to definition [2]: t/emps
 - (c) 4 graphemes according to definition [3]: t/em/p/s.
- (Swiggers & Van Hoecke 1990, my translation)

Martin's third definition also allows morphophonemic information to be taken into account.

More recently, Piirainen (1986; my translations) lists four usages of *grapheme*. (1) For Vachek, "the autonomy of the graphemic level is stressed and the grapheme is postulated as the smallest functional unit on the level of written language. The grapheme is a class of graphs, which are distributionally specified as a graphic unit that differentiates language signs." (2) For W. Fleischer, "the grapheme is the smallest distinctive unit of the written language that represents a phoneme." (3) For J.C. McLaughlin, "graphemes are groups of written signs that stand in opposition to other written signs or groups of written signs. If a graphic unit (a single sign or series of signs) represents a phoneme, it is called a graphoneme." (4) For H.P. Althaus, "Graphs make up a subgrapheme as a class of graphic units. The grapheme is a class of subgraphemes or a subgrapheme that is semantically distinguishable. A diagrapheme is again a graphic unit that exhibits a complex graphemic character and can also represent several graphemes." Each of these scholars is a specialist in some area of Germanic philology, so these characterizations pertain to alphabetic scripts and need not apply to other types.

As representative — nearly sole representative — of American descriptivists writing on writing systems, I take Robert A. Hall, Jr., who seems to have addressed the topic just once, in a 1952 talk (not published until 1960 and 1963 in slightly differing versions). His "A theory of graphemics" or "Graphemics and linguistics" is not in fact a theory of graphemics, but a useful, almost comprehensive list of phenomena that need to be accounted for in such a theory. He mentions capitals

and final sigmas and compound graphemes like ⟨th⟩, and phonemic and morphophonemic and etymological and morphemic and semantic and arbitrary representation, 'among much else; but his only "definition" of *grapheme* is 'significant unit of visually perceived form'. In the absence of any discussion, I have no idea what that phrase means — it is not connected to either writing or language, for instance. Contrast that with the rigor of, say, Bloch's Postulates for Phonemic Analysis (1948).

The scholar I take as bridging European and American traditions is Ernst Pulgram. His frequently cited article is "Phoneme and grapheme: A parallel" (1951). But *phoneme* and *grapheme* are not parallel. What Pulgram discusses is the parallels between phonemes and *letters of the alphabet*; but even if we restrict the discussion to English, whatever the concept of grapheme may cover, it must include more than letters of the alphabet. Wouldn't dollar signs be graphemes? Numbers? Punctuation marks? Pulgram recognized the weakness of limiting his discussion to alphabetic writing, and some years later, in a much less frequently cited article, "Graphic and phonic systems: Figurae and signs" (1965), discussed parallels between the other types of scripts and higher levels of organization of spoken language: syllables and morphemes. Here, though, he is interested in fit and efficiency and historical questions; he applies the term *grapheme* to the units of a syllabary and to what he calls ideograms, but he is wrong in several matters of fact (concerning, say, Cherokee), and again I do not find a definition of *grapheme*.

This is just as well. I say there is no coherent definition of *grapheme* if the morpheme *eme* is to have any consistent meaning within linguistics. First I will give some examples of how the elements of scripts do not pattern like phonemes; then I will explain why they do not, and why a search for "graphemes" is fruitless.

First, if there are graphemes, there must be allographs. (By definition.) Let us suppose that, as in the most common use of the term, a letter of the roman alphabet — for simplicity, the roman alphabet as used for English — is a grapheme. What are the allographs of a letter of the English alphabet? We say there are 26 letters. That suggests they comprise 26 graphemes. In that case, capitals and lower-case letters are allographs of a grapheme. But is capitalization purely a nonsignificant, conditioned variant? No; as Hall points out, it is used to distinguish proper words from common words in contexts that would otherwise contain ambiguous forms. So English must have at least 52 alphabetic graphemes, which come in closely associated pairs. I know of no parallel phenomenon among phonemes.

Second, to stay with English, what of digraphs? When ⟨th⟩ represents /θ/, is it a grapheme? Yes, according to Hall and others. But when it represents /tʰ/ in ⟨foothills⟩, it is two graphemes. But long ago it was decreed that English affricates are unit phonemes; /t/ followed by /ʃ/ is /tʃ/, and it is not a sequence of phonemes comprising another phoneme.

A parallel does exist in the case of ligatures. Printing ⟨fi⟩ with a single character of a typeface is like assimilation: say, palatalization. This, though, is marginal. The standard printers' ligatures (of ⟨f⟩ with ⟨t⟩, ⟨i⟩, and ⟨l⟩) are not provided in the great majority of computer-printer fonts, and when they are, there is no provision in the word-processing software for using them.

Third, there is the question of distinctive features. This was not explicitly part of the definition of *phoneme*, but it was implicit in American two-dimensional phonemic charts long before Jakobson, Fant, and Halle (1951). There have been attempts at featural dissections of the English alphabet, including one by Earl M. Herrick (1977; his stratificational description, I'm sorry to say, I do not have the training to understand).² Maybe the most successful is the practical dissection by calligraphers, which has no theoretical basis of any kind (all the penstrokes needed to write a roman capital alphabet are contained in the word **SOAP**; cf. Daniels 1984), but it is hard to believe that such a dissection belongs in a linguistic description.

Featural scripts exist (Fig. 1): Korean, Cree syllabics, Pitman shorthand, Bell's Visible Speech (1867), Gregg shorthand. Except perhaps for Bell's, they are not and never were used consciously as such.

²Prof. David Lockwood directed me to Herrick's 1966 thesis, which was written before his immersion in orthodox stratificational theory and notation. From this it appears that Herrick is analyzing not the graphic level of the English language (there are, for instance, no rules relating spelling to pronunciation), but the geometric shapes of the elements of a particular typeface. The analysis is strictly visual — i.e., like acoustic phonetics — without interest in the production of letterforms with a writing instrument — like articulatory phonetics. He too uses the term *grapheme* without defining it, but his list of graphemes shows that he considers regular minuscule, regular majuscule, italic minuscule, italic majuscule, bold minuscule, bold majuscule, and small capital versions of each letter to be a separate grapheme. This certainly ignores the phonemic "parallel" of suprasegmentals. Moreover, no discovery procedures are suggested, using which a similar analysis of a different script — or even a different typeface of English — could be arrived at. For Herrick (1977), "the typical *graphemes* are the letters," and he now separates out capitals, italics, etc., as suprasegmentals.

I am aware of a featural analysis of English script by Julius Nyikos, published in the 15th LACUS Forum (1988), but the last several volumes of this series have not been distributed to Chicago-area university libraries, so I have been unable to consult it.

Table 1
Chinese (after DeFrancis 1989: 107)

semantic	phonetic			
	敖	傲	参	侥
人 'person'	傲	ào 'proud'	参	cān 'good'
手 'hand'	掣	ào 'shake'	掺	shān 'seize'
木 'wood'	桡	āo 'barge'	参	shēn 'beam'
水 'water'	激	ào 'stream'	渗	shèn 'leak'
			浇	jiāo 'sprinkle'
			浦	pǔ 'creek'

To further explore the notion of subdivision of units, I take examples from Mesopotamian cuneiform and from Chinese. For Pulgram — alone, since no one else seems even to have considered script types other than alphabets — the characters of each script are graphemes. Yet there are recurrent elements in each. In cuneiform (Fig. 2), every sign (as they are called) has one or usually several phonemic readings and one or several morphemic readings. But the recurrent elements are strictly arbitrary — signs containing the same visual element have no phonetic or semantic similarities. Are these units to be considered distinctive feature components of graphemes? What of the residues of each sign? I cannot think of any parallel in phonology.

In Chinese (Table 1), nearly every character is composed of two parts. In nearly every character (or, according to William Boltz [1991], in every character diachronically), one of the parts gives, or gives a clue to, the pronunciation; the other part gives a clue to the meaning. Which are the graphemes here? The 5000-odd distinct characters,³ or the few hundred components they can be analyzed into? Or even the limited set of brush strokes that the components are written with?

In Arabic script (Fig. 3), are the graphemes the 28 letters of the alphabet, or perhaps the smaller number of linear shapes that combine with dots to make up the letters? And how are we to treat the diacritics for vowels and glottals and sundry liaison phenomena? (There isn't even a definition of *diacritic*. Sometimes I think the consonant dots are diacritics, too.)

Speaking of diacritics, when in Indian and Indian-derived and Ethiopic scripts (Fig. 4) a vowel mark is combined with a consonant, is the result — a syllabogram with vowel other than /a/ — itself a

³On the true number of characters needed in Chinese, see Norman 1988: 73.

grapheme? Or is it like English ⟨th⟩?

I say that all these questions, and many more,⁴ which to my knowledge have not been taken up by those who write "theories of graphemics," do not have answers in the framework of emic terminology. I say that no attempt should be made to apply emic terminology to writing. And now I shall explain why.

Emic terminology relates to a property of the human mind. It applies to language, and to culture and many aspects of human behavior, because human brains have evolved over the myriadennia in a way that produces such behavior. Even if I knew how or why, this would not be the place to go into it; it seems to me simply self-evident. The point is that it applies to non-conscious phenomena. It applies to aspects of behavior that have evolved. It is not conscious. It was not even recognized as such until the discovery of the phoneme.

Moreover, language is a pan-human property. All languages, and all brains, are underlyingly similar to the extent that any human can learn any language. We may suppose that mental grammars all contain the same set of components — maybe phonology, grammar, semantics. But writing systems are not all alike — there are at least five unreducible basic types (logography, syllabary, abjad, alphabet, neosyllabary, and maybe featural system; Daniels 1990), and there is no reason that others have not been devised. There are even hybrids. Writing is a product of human ingenuity (which we might as well consider limitless), not human evolution (which is constrained by everything that has evolved before, and by the environment as well).

Therefore the emic system should not be expected to apply to writing, because writing is a conscious invention. There is no region of the brain that has evolved for writing; writing is handled by speech plus vision plus manual dexterity areas. I submit it is foolish to try to apply a model developed to account for unconsciously evolved phenomena of human behavior to phenomena that are consciously devised. The notion of *graphemics* ought to be jettisoned, and with it the elusive — the impossible — concept of *grapheme*.

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⁴Prof. Allan Gleason adds the further difference between a writing system and a sound-system that a script is an open system of units — additional graphs can be added at will, for instance English ♥ — while a language's phonology at any stage is a closed system.

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Fig. 2: Cuneiform:

Some of the signs containing the hi shape:

	hi
	kam
	máš
	kun
	gi
	tig
	dar
	am

Fig. 3: Arabic:

The letters that are differentiated by dots:

ن n	ت t	ث θ
ي y	ب b	
خ x		
ح h	ج j	
د d	ذ δ	
ر r	ز z	
س s		ش
ص s	ض d	
ط t	ظ z	
ع e	غ g	
	ف f	ق q

Fig. 4: Ethiopic:

Consonant (rows) followed by vowel (columns):
* indicates labialization (from Daniels 1983: 248):

	a	ū	ī	ā	ē	e	ō
h	ሀ	ሁ	ሂ	ሃ	ሄ	ህ	ሆ
l	ለ	ሉ	ሊ	ላ	ሌ	ል	ሎ
ḥ	ሐ	ሑ	ሒ	ሓ	ሔ	ሕ	ሖ
m	መ	ሙ	ሚ	ማ	ሜ	ሞ	ሟ
š	ሠ	ሡ	ሢ	ሣ	ሤ	ሥ	ሦ
r	ረ	ሩ	ሪ	ራ	ራ	ሮ	ሮ
s	ሰ	ሱ	ሲ	ሳ	ሴ	ስ	ሶ
q	ቀ	ቁ	ቂ	ቃ	ቄ	ቅ	ቆ
q̣		ቈ		ቊ	ቋ	ቌ	ቍ
b	በ	ቡ	ቢ	ባ	ቤ	ብ	ቦ
t	ተ	ቱ	ቲ	ታ	ቤ	ቦ	ቦ
ḥ	ሀ	ሁ	ሂ	ሃ	ሄ	ህ	ሆ
ḥ̣	ሐ		ሒ	ሓ	ሔ	ሕ	
n	ነ	ኑ	ኒ	ና	ኔ	ኖ	ኖ
ጎ	አ	ኡ	ኢ	ኣ	ኤ	ኦ	ኦ
k	አ	ኡ	ኢ	ኣ	ኤ	ኦ	ኦ
ḳ	ኸ		ኺ	ኻ	ኼ	ኽ	ኾ
w	ወ	ዐ	ዒ	ዔ	ዖ	ዘ	ዐ
ግ	ወ	ዐ	ዒ	ዔ	ዖ	ዘ	ዐ
z	ዘ	ዐ	ዒ	ዔ	ዖ	ዘ	ዐ
y	የ	ዩ	ዪ	ያ	ዬ	ደ	ዩ
d	ደ	ዩ	ዪ	ያ	ዬ	ደ	ዩ
g	ገ	ገ	ገ	ገ	ገ	ገ	ገ
g̣	ገ		ገ	ገ	ገ	ገ	
!	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ	ጠ
p̣	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ
s	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ	ጸ
d	ፀ	ፀ	ፂ	ፃ	ፄ	ፅ	ፆ
f	ፈ	ፋ	ፈ	ፋ	ፈ	ፋ	ፈ
p	ፐ	ፑ	ፒ	ፓ	ፔ	ፕ	ፖ



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